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ORIGINAL LECTURES.

CLINICAL LECTURE

ON SPURIOUS OR "PHANTOM" TUMORS OF THE ABDOMEN.

Delivered at the Pennsylvania Hospital in January, 1871.

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GENTLEMEN: There have been lately some cases in the ward which have caused us to discuss several of the more obscure diseases of the abdomen, and especially those connected with palpable swellings.

Now, this whole subject of abdominal tumors is one of the most difficult and puzzling in medicine. Each case is, or ought to be, an object of study in itself, and often has to be judged by the circumstances peculiar to it. Then, to complicate matters, some tumors are not the result of morbid growths or enlargements, but arise from dislocation of viscera in the yielding cavity in which they are placed; or, again, there are swellings due to, or at least favored by, irregularities in shape of the walls and of the elastic and readily-distended structures which enter so largely into the composition of the contents of the abdomen; tumors, therefore, which, if we can designate them as tumors at all, are not such in the ordinary acceptance of the term. To this group belong those strange spurious swellings that have been called "phantom" tumors, which require much care and some skill to discriminate, and which, while they have perplexed more than one observer, receive but very unwilling attention from most. The case before you belongs to this group, and in examining it I shall take occasion to investigate the whole subject. But first let me recall the features of this case, which you have seen before.

Eugene L., twenty-eight years of age, was admitted into this hospital on January 10 in a state of unconsciousness, from which he recovered with blindness, almost total, of both eyes, and which only slowly passed away. The cerebral symptoms made the case a very instructive one; but they need not be explained here, as the patient was before the class on a former occasion. What concerns us now more particularly is that, on the 18th, a well-marked prominence of the epigastric region was observed, especially noticeable at its lower portion, and giving the impression of a large solid tumor. Yet the swelling was clear on percussion, and on slapping it smartly the abdominal muscles contracted, and this movement caused the tumefaction nearly to disappear, to return again almost instantly when the muscles relaxed. On applying a strong faradaic current with wet electrodes, the muscular contraction rendered the belly scaphoid and wholly obliterated the tumor, which, however, would reappear as before. The digestion of the man was fair; there was certainly no marked dyspepsia. He knew very little about the swelling, but thought it existed before his attack of unconsciousness. He is now (January 24) about leaving the hospital; and though the swelling has lessened, it still exists, and may be made to disappear in the same manner as mentioned.

Now, here is an instance in which the swelling occupied the epigastric region. So it did in the following case, which I saw not long since with Dr. Hunt in this hospital:

Corn. F., eighteen years of age, single, was admitted into the hospital, October 8, 1870, with the request that she might be operated on for an abdominal tumor. The girl was in the habit of carrying excessive weights. She had a hysterical look, and confessed to being addicted to self-abuse. She

presented a circumscribed, smooth, firm but elastic swelling occupying the middle of the abdomen, and extending from the ensiform cartilage to below the umbilicus. She had had this tumor for many months, and about three or four months prior to admission an operation was attempted for its removal, which, however, was abandoned "upon the escape of gas;" and one of the surgeons present, it was stated, supposed that the stomach had been perforated. A broad red cicatrix, near the median line, and about three inches in length, indicated the point selected for the operation.

Within a day or two after her admission into the hospital, a tube was passed into the stomach, and the point of it could be distinctly felt through the abdominal walls, directly under the external scar. Some gas escaped at the time, the tumor decreased, and an hour or two afterwards the swelling still seemed smaller, as Cornelia herself thought. The same morning she was thoroughly etherized by the Resident Physician, Dr. Van Harlingen, and the tumor entirely disappeared, leaving the contour of the abdomen normal, excepting where a deep fold of the walls over the former location of the swelling gave it an unnatural look. The abdomen retained its flaccid appearance for some hours after the etherization, and it was several days before the tumefaction regained its previous size.

The patient, who was somewhat constipated, was ordered Congress water; also a daily shower-bath; and some bitter tonic was prescribed. Subsequently she passed into Dr. Morton's hands, who, on taking charge of the ward, directed the continued use of a corset made for the purpose of giving support to the abdominal walls at the point of trouble. On the 29th of November she left the hospital, at her own request.

But you must not suppose that it is only in or near the epigastric region that we meet with these tumors. They are encountered at every part of the abdomen, and, to a considerable extent in accordance with their site, their size and shape will vary; and these changes render them likely to be mistaken for an entirely different set of maladies. Let me, by way of illustration, bring to your notice a case which was under my charge in this hospital two years since:

Mary D., thirty-five years of age, sent to my ward on the 5th of January, 1869. She stated that she had been in the hospital eight years before on account of dropsy, and that about ten weeks prior to her present admission she had noticed swelling of the face and feet; within the last two months there had also been a swelling of the abdomen, of varying dimensions, or, in her own language, one which "comes and goes." The menstrual functions were irregular; her feet remained swollen some days after she had been in the hospital. The urine was found to contain a small quantity of albumen; there was no disease either of the heart or the liver; the bowels were constipated. The abdomen was $32\frac{1}{2}$ inches in circumference, but no ascites existed. At the lower part of the prominent belly, and extending to the flanks, was a tumor of irregular outline, everywhere tympanitic on percussion excepting just above the umbilicus, where there was some dulness with resistance and soreness to the touch. Contraction of the recti muscles caused a deep groove through the centre of the tumor in the line of the muscles; at the same time the sides of the swelling bulged and became somewhat tenser. The outline of the waist suggested tight lacing, the lower part of the thorax being much compressed. Under the administration of ether the tumor disappeared, but as the effects of the anæsthetic passed off the irregular swelling reappeared. Strong pressure, too, temporarily dispersed it; and the patient said that, while it was always most marked after dinner, it had at times been almost absent.

On several examinations it was noticed that the percussion resonance was of clearer, fuller tympanitic character over the swelling than over the surrounding parts. The skin over the tumor was movable; its outline was so irregular as to throw doubt on the idea of persistent muscular contraction.

By the 19th the tumor had gone, and the abdominal walls were exceedingly flaccid. The ridge of the median line was well marked, but there was no puffing up; neither was there projection of the umbilicus,—indeed, this had never existed. The chief treatment consisted in laxatives, nux vomica, good

food, and occasional diuretics. No large masses of fecal matter passed at any time.

Now, when you look at the general features of the cases I have just spoken of, you will see that they are not dissimilar, yet how very readily in any of them doubt and confusion may have arisen. To place the matter in a clear light before you, I shall discuss the means of diagnosis on which I depend, partly such as have been already mentioned in examining the patients I have brought to your attention, partly others, which I have noticed more especially in cases I have seen, and which it is not necessary to detail.

First, the shape of the tumor is peculiar; it is apt to be irregular,—sometimes very much so,—and it is prone to change. Indeed, almost the whole prominence may shift its position. It is rarely sensitive, though, as in the case just reported, it may be so. Here and there a spot may be dull on percussion and resistant, but the mass of the swelling is always tympanitic, and more or less yielding. Strong pressure influences it greatly,—may indeed cause it to disappear; and so at times will a sudden blow. I have also known the tumor to vanish under the hypodermic use of atropia.

The effect of galvanism on the anomalous swelling is very striking. Faradization with wet electrodes, one placed over the tumefaction, the other near it, always produces a decided alteration in its shape and position, and may indeed obliterate it. The constant current has, I think, the same influence, but I have not tested this thoroughly.

But the readiest and most significant change is produced by the use of anæsthetics. Not in a single instance have I found these apparent tumors remain when the patient is under the influence of ether or chloroform, though they reappear, and quickly, when he passes from under that influence. I first used ether in a case which had been considered one of ovarian disease, occurring in a hysterical widow, and of which you will find an abstract in some clinical notes published in 1865 in the *Medical and Surgical Reporter*; and I have since employed ether so often that I speak with confidence of its value. Through it or chloroform, I think, we can control the diagnosis of these phantom tumors, which thus become ailments that no longer deceive us; and the same may be said of all those muscular contractions or tense states of the abdomen which are not unfrequently feigned, and which a high authority on such subjects declares "a source of difficulty almost impossible to get over." (Gavin on Feigned Diseases.)

I have thus laid before you the means to which I have learned to trust in the recognition of these spurious tumors. But it is also useful to know with what disorders you will be most likely to confound them. Not to speak of such solid tumors as those of the spleen, liver, or omentum, for which, with a little care, you can scarcely mistake them, I will call your attention to morbid conditions where error is much more apt to creep in.

The first of these is *enlargement of the stomach*. Now, when I come to say a few words on the probable pathology of these phantom tumors, you will see that it is likely that a certain amount of distention of the hollow viscera takes place, and, in consequence of the similarity of condition, similarity of symptoms may well happen. But in enlargement of the stomach, the soft, elastic, and, for the most part, markedly tympanitic swelling is connected with chronic gastritis or a narrowing of the pylorus, or it has followed some severe illness, such as typhus or puerperal fever, in which the coats of the stomach have been paralyzed; and in any case the nausea, the vomiting of frothy matter, the sour eructations, the epigastric pain,—in one word, the signs of marked gastric disorder,—are very different from the comparatively slight dyspepsia which may or may not

attend the spurious tumor. Then, the sound of splashing which shaking a patient with a dilated stomach occasions, and, if necessary, the introduction of a bougie, will throw light on a doubtful case; and anæsthetics, too, give different results.

Fecal accumulations have this in common with a phantom tumor, that they may be transient, or, if persistent, exhibit a certain amount of movement and change in size. Yet they are more apt to remain unaltered than the spurious swelling, and if associated with dilatation of the colon, which, when of any standing, they are likely to be, there are usually several tumors present, generally occupying the middle third of the abdomen. You might suppose that the existence of constipation would assist you in the diagnosis; but constipation is not always a symptom of fecal accumulations,—nay, diarrhœa is not uncommonly met with; and, on the other hand, in phantom tumors constipation is often encountered. The tympanitic note elicited over these is valuable as a means of distinction, though this too may be modified and some dullness be present at particular points of the swelling; but, as a general rule, it is a highly important means of distinction, and so is the unchanged character of a fecal tumor when anæsthetics have been administered.

The stress I have just laid on the tympanitic sound over the prominent mass cannot be laid when we come to regard the differential diagnosis of a *floating kidney*, for here the sound, too, is tympanitic, excepting on very strong percussion; but the importance to be attached to the results of ether or chloroform is the same. Then the marked mobility of the displaced organ, and the fact that it has generally become dislocated after some violent effort, are points in the case which decidedly aid us.

Tumors in the abdominal parietes—such tumors as result from morbid growths or from inflammatory indurations or abscesses—are distinguished by the dullness on percussion over them, by the sense of resistance they afford, by their being uninfluenced by pressure, and much more distinctly moved by the act of inspiration.

Another class of cases liable to be confounded with phantom tumors are *diseases of the ovaries*; and, as you are probably aware, attempts at removing the ovarian growth have been made where such growth existed only in the imagination of the operator. Mr. Lizars, in his work on "Tumors of the Ovary," records an instance which, speaking in a general way, belongs to the group of spurious swellings now under consideration; and Dr. Bright, in his classical memoir on abdominal tumors, describes a case of what he calls hysterical distention of the bowels, that, when he saw it, still had an unhealed scar, about three inches in length; and I know of two instances in which the operation was planned, though fortunately not attempted. In one of the cases I have detailed to you in this lecture, an operation was performed, though the tumor was not supposed to be ovarian.

Lastly, these spurious tumors may be confounded with *pregnancy*, and the more easily are they confounded in fat persons. But into this question I shall not fully enter. Yet I will call your attention to a few striking instances.

Perhaps some of you, in the course of your reading, may have encountered allusions to Joanna Southcott, a virgin who at more than sixty years of age declared herself to be pregnant by supernatural means. She duped many physicians; and when she died there was no tumor, merely a thick, very fatty omentum and much distention of the bowels. She is stated always to have eaten large quantities of improper food, and to have possessed the faculty of producing quick contractions of the abdominal muscles. It has generally been supposed that the circumscribed tumor was a distended

bladder; but I think we may recognize in the case of this self-styled prophetess all the elements necessary for the production of a phantom tumor. She lived before the days of anæsthetics, or the imposition would have been readily detected.

In an instance which Sir James Simpson describes (Clinical Lectures on the Diseases of Women), and, I believe, the first in which chloroform was used to assist in the diagnosis of pregnancy, the woman had a perfect mania to be considered pregnant, and had impressed her family with the correctness of her statement. Under chloroform the abdominal walls collapsed, and when she subsequently still insisted on the truth of the story, she was met with the indignant reply of her sister: "Haud your tongue, woman! You've naething in your wame, for I felt your backbane mysel' with my ain hand!" And the sister evidently spoke the truth; she made an observation which you will find true in the majority of instances of all kinds of phantom tumors.

Now, what of the pathology of these strange swellings? From the cases I have mentioned to you, and the observations I have made on them, you will have anticipated what I am about to say of their nature. You will probably believe with me—for in so changeable a disorder actual demonstration can scarcely be made—that the chief element in their production is partial contraction of the abdominal walls, particularly of the recti muscles, with more or less tympanitic distention of either the stomach or the intestine. Then a certain amount of constipation, and a large quantity of subcutaneous fat or of fat in the omentum, will modify some of the phenomena; for I do not think that all cases are precisely alike, or can be explained according to an exact formula. The frequent occurrence of these phantom tumors in hysterical persons is also to be taken into account; and the coexistence with hysteria may show itself in fits of hysterics, in convulsions, or in hysterical palsy. But do not fall into the mistake of supposing any necessary connection. I have met with these tumors in men who were not very impressionable. One man, indeed, who, after the nature of the swelling had been explained to him, and the fact that it was not dangerous stated, objected to anything being done to remove it, and took rather a pride in the fulness it imparted to his figure; very much, I suppose, in the same spirit in which Falstaff vaunts himself to the Lord Chief Justice: "I am the fellow with the great belly."

A few words in conclusion as to the treatment of these spurious swellings. You can understand at once how laxatives, belladonna, iron, and the bitter tonics will prove serviceable; how at times carminatives and antispasmodics may be resorted to; and how the local use of frictions and of galvanism, or how a bandage, is productive of good. But the chief treatment is apt to become the mental treatment. Impress on the patient's mind that you know exactly what the trouble is; prove to him that it is not serious and that you are not deceived by it, and you have made a long stride in your therapeutics. In truth, you can scarcely refer to a disorder in which an accurate diagnosis is of more direct immediate good; it goes a great way in itself towards effecting a cure, and it prevents the adoption of means which may be useless, ridiculous,—nay, dangerous. But to arrive at that diagnosis you must exert in every case care and skill; do not rest satisfied until you have thought of every possible point. Most applicable is here what one of the ablest physicians, as well as most elegant writers, of our day, Sir Thomas Watson, says in general of abdominal tumors: "Your sagacity will be abundantly tried in balancing the evidences of different symptoms in these obscure yet palpable forms of disease; and, after all, you will often doubt; and often when you do not doubt you will mistake." Knowing how true is this remark, I have in this

lecture endeavored to show you where doubt comes in, why it must come in, and how it is to be met and removed.

ORIGINAL COMMUNICATIONS.

AUSPITZ ON THE ABSORPTION OF INSOLUBLE MATTER IN MAMMALS.

AN ABSTRACT.

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A MOST interesting paper,* containing a number of physiological experiments, has just been given to the profession by Dr. Auspitz, of Vienna. Dr. A., formerly Prof. Hebra's assistant, and well known as a dermatologist and syphilographer, has devoted much time to research and experiment; while the thoroughness with which all his investigations have been carried out renders them exceedingly valuable. The experiments upon which the article under consideration is based were made during the past six months in Prof. Stricker's laboratory, and with the assistance of that careful experimenter and physiologist. Feeling confident that researches of this nature—some of which bear so intimately upon therapeutics—must be of interest to the profession in our own country, I have made the following short résumé:

Experiments for the purpose of determining the absorption of insoluble matter have heretofore been conducted chiefly in three directions, one question being whether, and, if so, in what way insoluble matter reaches the lymphatic system and so the blood, supposing it to start from the intestine. On other occasions the integument of the body has been chosen as the seat of experiment; and finally, of late, several physiologists have experimented upon the large cavities of the body, including the peritoneal sac and pleural cavity. Before taking up the consideration of the present investigations, it will be worth while to glance briefly at the results of some previous experiments. In regard to absorption from the intestinal canal, it is well known that fluids and fat-particles easily force their way through the walls of the intestine. With reference, however, to the penetration of finely-divided solid matter from the intestine into the circulation, numerous experiments with various substances upon frogs, rabbits, dogs, cats, and guinea-pigs have been reported, and, as we shall see, with various results. Thus, Oesterlent† gave cats mercurial ointment to eat, and reported that he found mercury in the blood. Herbst‡ asserted that he had proved the passage of milk-globules and starch-granules into the lymphatic and blood vessels, by means of a number of experiments, an assertion which Bruch§ also confirmed by his experiments upon the mesenteric veins of sucking cats and dogs. Donders and Mesonides|| mixed powdered charcoal with the food of rabbits, and found in every drop of blood examined, no matter whence taken, small granules of charcoal. Thin sections of dried lung from rabbits treated as above mentioned, showed particles of charcoal in abundance. A mixture

* Ueber die Resorption ungelöster Stoffe bei Säugethieren, von Heinrich Auspitz in Wien (separatabdruck aus den Wiener Medizinischen Jahrbüchern, N. F. III.), Wien, 1871.

† Archiv für physiol. Heilkunde, 1843.

‡ Das Lymphgefäß-System und seine Verrichtungen, 1844.

§ Kölliker und Siebold's Zeitschrift f. wissenschaftl. Zoologie, Band 4.

|| Nederlandsch Lancet, Bd. 4, Traj., 1848.

of powdered charcoal and wheat-flour injected into the stomachs of frogs was followed, after a few hours, by the presence of starch-flour in the blood. Donders at the same time expresses the view that solid particles are taken up by the lymphatics, and not by the blood-vessels, inasmuch as he never found such particles in the liver. Marfels and Moleschott* made similar experiments with the blood-corpuscles of sheep and with the pigment particles of the choroid coat of the eye, with which they fed frogs and dogs. Afterwards they saw these particles revolving in the capillaries of the web of the frogs' feet. They also found pigment grains in the intestinal epithelium-cells of the dogs, and rows of the sheep-blood-corpuscles in the intestinal epithelium of the frogs. On the other hand, Hoffmann,† who gave animals metallic mercury or mercurial ointment to eat, observed nothing in the intestinal villi which permitted him to conclude that there was an absorption of these particles. Hollander,‡ having repeated the experiments of Marfels and Moleschott, also came to negative results, and he considers it likely that these observers were deceived by lymph-corpuscles. Moleschott§ at a later period, however, still adhered to his assertions, and endeavored to adduce new proofs. Crocq|| found that particles of charcoal could pass from the intestine into the blood, and, moreover, that these particles could also pass from the skin, serous membranes, and organs of respiration into the circulation, though only when their respective membranes were deprived of epithelium. Overbeck,¶ in connection with his researches upon mercury, instituted several absorption experiments. He fed two frogs for two days upon mercurial ointment, and on the third day examined them, but was unable to find any globules of mercury in the capillaries of the webbing of the feet. But when the animals were given an emulsion of gum-arabic and finely-divided mercury, and when, some hours afterwards, they died from an intestinal inflammation, the livers of both frogs showed numerous globules of mercury. In the case of a rabbit to which he gave mercurial ointment by the mouth, on the contrary, he was unable to discover globules in either the kidneys or the liver. Rindfleisch** mixed mercurial ointment with potatoes and bread, and fed rabbits and guinea-pigs with the mixture. He found diphtheritic ulcers upon the folds of the lower portion of the intestine, while in the pancreas he discovered only single globules of mercury, but none in the blood or other organs. He concludes from this that mercury penetrates into the open parenchyma of bodies, and particularly through open lymphatics and at the base of eroding ulcers. These results about agree with those of Crocq, above mentioned. Experiments by Stricker and Heitzmann, made upon rabbits for the purpose of determining the absorption from the intestine, on the other hand gave by no means positive results.

The investigations that have just been referred to are perhaps the most reliable on record, but, owing to deficiency in the method of examination, so far as they go to establish direct and positive results the majority of them must be accepted with reserve. The proof, then, of the penetration of solid particles from the intestine into the lymphatics seems at present scarcely to be fully made out.

With reference to the absorption from the integument of the body, numerous experiments have been made,

both with soluble and insoluble substances, and likewise with various results. The majority of the experiments with insoluble matter have been instituted with mercury, and, for the most part, more with a view to therapeutics than physiology. However, there remains no doubt that mercury, particularly when applied in the form of an ointment upon the skin, reaches the circulation, the only question being whether the same is taken up as solid matter, or, in the process of the transition, is converted into a soluble combination.

The first investigations concerning the permeability of the skin for mercury were made, according to Overbeck's statement, by Autenrieth and Zeller.†† These experimenters inserted beneath the skin pieces of gold, and, after cicatrization, rubbed over the surface mercurial ointment. Upon examination after death, they found the gold pieces not amalgamated. Béclard,‡‡ and, after his example, Krause, endeavored to force metallic mercury through the epidermis by means of a press, but without success, the epidermis tearing before it allowed the mercury to pass through. Oesterlen§§ experimented by rubbing mercurial ointment into the shaved bellies of cats, and, in addition, he fed them upon the ointment. He states, as a result, that he found globules of mercury, varying in size, in most of the organs, including the liver, pancreas, spleen, lungs, heart, kidneys, cutis, etc. He reports also that he observed the same result in a toad. Eberhard|| came to analogous conclusions with rabbits, while Landerer¶¶ and Van Hasselt*** corroborated the same. Opposed to these statements, Baerensprung,††† who made similar experiments, reports negative results; and Donders,†††† who rubbed mercurial ointment as well as powdered sulphur into rabbits, failed to meet with success.

Baerensprung, upon another occasion, repeated the experiments of Autenrieth already referred to, but again failed to obtain evidence of the transit of the mercury.

Voit§§§ rubbed mercurial ointment thoroughly into the forearm of a criminal about to be executed. Having cleaned the skin carefully, with a double knife he excised portions of the integument and examined them. The whole epidermis was filled with black particles, which reached as far down as the papillæ, and some even into the corium. The particles were of the smallest size, and black, according to Voit, in consequence of beginning oxidation. The particles seldom extended as far as the blood-vessels.

Merbach|||| tells us that having rubbed an ointment of iodide of potassium into the skin, he saw the same go through the integument; while Zülser¶¶¶ noticed the penetration of mercurial and iodide of lead ointment into the ducts of the glands, the epidermis of which had been removed by a blister. Delore**** asserts, on the contrary, that insoluble bodies, excepting mercury, are never absorbed, and that ointments containing such ingredients are inert, but that the iodide of lead in small quantities is taken up by wounds, though never by the skin.

Overbeck†††† upon one occasion made a number of inunction experiments upon himself and others, but, even when salivation had taken place, he failed to detect mercury-globules either in the spittle or the urine.

†† Additions à l'Anatomie générale de Bichat, p. 302.

†† Wagner's Handwörterbuch der Physiologie, art. Haut, p. 153.

‡‡ Loc. cit.

§§ Henle u. Pfeufer's Archiv, neue Folge, Bd. i., 3. Heft.

|| Buchner's Repert. N. R., Bd. 45, 1847, S. 59.

¶¶ Nederl. Lancet, August, 1849.

*** Halae, 1847, u. Journ. f. prakt. Chemie von Erdmann u. Marchand,

Bd. 50, 1850.

§§§ Loc. cit.

|||| Physiologisch-chemische Untersuchungen, 1. Heft, Augsburg, 1857.

¶¶¶ Archiv f. Balneologie, 1863.

**** Wiener Mediz. Rundschau, 1864, iv.

†††† Jour. de la Phys., vi. p. 249, 1863.

††††† Loc. cit.

* Wien. Med. Wochenschr., 1854, Nr. 52.

† Ueber die Aufnahme von Quecksilber und der Fette in den Kreislauf. Diss. Würzburg, 1854.

‡ Virchow's Archiv, 1856.

§ Untersuchungen zur Naturlehre, ii. p. 119, 1857.

|| Bulletin de l'Académie de Bruxelles, p. 419, 1858.

¶ Mercur und Syphilis, 1861, p. 24.

** Auspitz und Pick's Archiv f. Dermatologie und Syphilis, ii. Bd., p. 309, 1870.

Some inunction experiments upon animals, conducted with great precaution, proved more successful. Here he found small globules of mercury in the connective tissue, as in Voit's experiments, the oxidation which Voit referred to being only exceptionally observed. Leaving out of consideration the experiments which resulted negatively, if we note those which gave positive results, the question at best remains unsatisfactorily answered. In fact, the subject resolves itself into two questions. First, is metallic mercury able to pass through the epidermis? and, second, is it absorbed in the cutis and subcutaneous tissue as metallic mercury? In reference to the question of absorption, the results of Recklinghausen's experiments* made in connection with his work on the lymphatic system have given us some light. He injected into the peritoneums of rabbits various substances, such as milk, cobalt-blue, india-ink, emulsion of yolk of egg, olive-oil, cinnabar, whipped ox-blood, etc., and proved by numerous experiments that the lymphatics not only absorb from the peritoneum fluids which are not miscible with water, but also fluids which contain particles of fixed or changeable form suspended in them. Contradictory to this, other experiments which he made went to show that absorption does not take place through the lymphatics or through other parts of the peritoneum.

It will be readily seen, from the many conflicting statements that have been made by various investigators, that mercury is but poorly suited as a material for determining the absorption of insoluble matter. Accordingly, Auspitz has undertaken his experiments with a substance which, exhibiting a low specific gravity, also possesses definite outline and solidity of form; in this respect differing advantageously from metallic mercury and the various colored substances heretofore employed. The article selected was starch-flour, which, on account of its relations to iodine and polarized light, admits of infallible recognition, and seems particularly adapted to such experiments. The rice-starch granules are very minute, measuring 0.045 mm., while the human red blood-corpuscle measures 0.0077 mm., and that of the rabbit about 0.0069 mm. It is important and of interest to note that these granules of rice-flour are not soluble in the blood, while their relation to iodine is so well known as to need no comment. Preparations and sections were carefully made with clean instruments, and every precaution was taken to prevent the access of particles from without. Specimens were first examined with a low power, then iodine solution was added, and by means of higher powers the change of color was noted. In some of the injections white rice-flour was employed, while in others the flour was colored with iodine solution before the injection, thus materially assisting diagnosis in cases of doubt. These granules of iodized starch were easily distinguishable from particles of pigment through their sharply-defined round or oval form, while their lack of lustre served to separate them from air-bubbles.

The series of experiments under consideration were seven in number, each series embracing from six to twelve separate experiments. They were performed principally upon rabbits, dogs, and guinea-pigs, the results being of such a nature that, to obtain a correct appreciation, it will be necessary to refer to them separately.

The first series consisted of twelve injections of rice-flour suspended in water, thrown into the venous system of rabbits, dogs, and guinea-pigs. Eight injections were made into the external jugular vein, the animals dying either during or directly after the operation. Blood from the different veins was examined immediately after the injections, but only in a single case—

in the crural vein—were granules of starch found, and these in groups. Here and there white blood-corpuscles, with one or even two granules of starch in their centre, were discovered, and these were proved by means of iodine. In all the injected animals the lungs were infiltrated with both large and small granules of starch, so that in fine microscopical sections these particles were present in every part of the tissue. In none of the cases, however, was any disease in the structure of the lung-tissue discoverable. In the right ventricle and auricle grains of starch were present in all the cases. The liver contained single granules in all the specimens, though in much less quantity than the lungs. In the spleen only exceptionally could a few granules be detected. The kidneys contained more granules than the spleen, though proportionately less than the liver.

Three injections were next made into the inferior vena cava, just above the diaphragm. The animals were first anaesthetized, tracheotomy was performed, and artificial respiration established. A piece of the thorax wall was then cut out, so that the right lung, heart, and inferior vena cava were exposed. A canula, directed towards the heart, was inserted into the vena cava and tied down, and through this iodized starch in a half-per-cent. chloride of sodium solution was injected. The lungs were instantly expanded, the heart beating for some time after the injection. In the first animal, in which through an accident during tracheotomy the carotid was cut and insufficiently ligated, blood mixed with iodized starch flowed from the artery directly after the injection. The lung of this animal contained starch in abundance, while in the liver there was scarcely any.

In the second animal, blood taken from the crural vein exhibited innumerable small starch-granules, which had lost their tint by passing through the circulation, but which were re-colored violet by the addition of iodine. The lungs held a quantity of the material, which had not lost its color. There were scarcely any granules in either the liver or the kidneys, but in the small arteries of these organs grains were found, which gave the known cross with polarized light.

In the third animal the lungs were densely filled, but neither in the other organs nor in the venous blood were any granules to be found. To complete this first series of experiments, iodized starch was injected directly into the pulmonary artery while the heart was yet beating. The animal died during the operation. Both lungs were injected blue, though the distribution in the different lobes was not symmetrical. Starch-granules were not present in any of the other organs.

If now we glance at the results obtained from the foregoing experiments, we shall see that starch-flour injected directly into the venous system, following the course of the blood, found its way into the right auricle, thence through the right ventricle into the pulmonary artery, and thence into the lung-tissue. While the greater part of the injected material remained in the lung, a smaller portion went through the pulmonary veins into the left auricle, thence into the left ventricle, and from this into the general circulation; so that a few scattered grains were discoverable in the liver, kidney, spleen, and in the arteries and veins of the body. In none of the cases did the lung-tissue injected with starch show any morbid change which could be ascribed to the injection, such as hemorrhagic infarctus or inflammatory swellings. Similar injections into the jugular vein have been made with various substances. Thus, Gaspard, Magendie, Cruveilhier, Gluge, Virchow, and Panum used mercury, while D'Arcet employed gold-dust for his experiments. Again, Magendie injected charcoal-powder; Magendie and Virchow, flour; Panum, globules of wax; and, finally, Virchow and others used fat for their injections. But most of these experi-

* Virchow's Archiv, 1863.

ments were undertaken with a view of studying the change resulting in the lung-tissue itself, and hence scarcely deserve attention in connection with the present researches.

The second series of experiments consisted of injections into the peritoneum of starch suspended in water. Rabbits and guinea-pigs were selected, and with a large hypodermic syringe the fluid was thrown slowly into the peritoneal sac, the animals not reacting at the time. These five experiments were successfully carried out, with the following results: Two of the rabbits died on the second day, from diarrhoea, peritonitis being present in only one of the cases. Of the other three animals, which were killed, only one exhibited any signs of inflammation; and this case is worthy of a few remarks. A guinea-pig was injected with about a drachm of iodized starch-mixture, and the next day the animal was killed. Upon examination there was no starch found in the blood, nor were there any signs of an accumulation of starch in the peritoneum. Upon the lower border of one of the lobes of the liver, where there was found some exudation-product, small starch-grains were discovered in great number, but neither the liver-cells themselves, nor the spleen, kidneys, nor lungs, contained any granules. It appears probable that in this case the starch did not go through the pulmonary circulation into the liver, and so to the point of exudation, but that the starch-grains wandered forth direct from the peritoneum into the patch of exudation, which had in all probability previously existed. In the remaining animals injected, scattered starch-grains showed themselves here and there in the lungs, while in the liver, spleen, and kidneys they were only rarely discoverable.

The third series of experiments was likewise made upon rabbits and guinea-pigs. Nine animals were selected, and from two to four drachms of flour suspended in water were injected into the subcutaneous tissue just beneath the corium on the back. In two cases the flour was demonstrable in great quantity in the lungs, while in the rest only a few scattered grains were seen. In the two cases referred to, flour-grains were found in the muscles of the heart. In the other organs only a few were discovered. On five occasions out of the nine, starch-granules were found in blood taken from the ear. In two cases there were ecchymoses in the brain, which contained starch-granules. In another case, an obstruction, the size of a pin's head, containing pus, was discovered in the liver, which at the same time contained starch, there being no disease of the remaining organs.

If we look over the above experiments, we shall see that the starch in the majority of the cases was found only in scattered grains and in a few of the organs. A question hence arises whether these grains did not perhaps get into the tissue accidentally from without. Though the greatest amount of care and precaution had been used to prevent any such accident, it was not possible to say positively that such had not taken place, and, accordingly, to insure accurate results, the fourth series of experiments was instituted. This led to a series of injections of starch suspended in oil, thrown into the peritoneums of rabbits. In the first experiment, the animal died on the second day. In a pleuritic exudation which was present, a quantity of starch-flour granules of all sizes was found. The cavity of the heart, the lungs, and the veins of the brain showed abundance of starch. In the second experiment, the fluids of the lungs, the lung-tissue, and the blood of the heart contained starch in quantity; while in the third experiment, the lungs, liver, walls of the heart, and blood-clot all showed starch in moderate quantity.

Having had such favorable results from the experi-

ments just mentioned, Auspitz now injected starch suspended in oil into the subcutaneous tissue of the back, and on the third day after, killed the animals. In the lung itself, as well as in the fluids of the lung, there were quantities of large and small granules and oil-drops. In the lymphatic glands of the axilla, in the liver, spleen, and kidneys, scattered grains were also found. Repeating the same experiment upon another rabbit, he found the different organs even more thoroughly penetrated with starch- and oil-globules, and also the veins of the medulla oblongata and cerebellum filled with numerous starch-grains.

The last two successful series of experiments leave no room for doubt that starch suspended in oil, when injected in quantity into the peritoneal sac, as well as into the subcutaneous tissue, easily reaches the circulation. Moreover, besides the starch, fat was found in the various organs and in the blood, and in such quantities that beyond doubt it came from the injection-fluid. This is an interesting fact, proving that fat is absorbed from the serous membranes and the subcutaneous tissue, as well as from the intestinal tract.

There still remained to determine where the termination-points of absorption existed; and for this purpose the sixth series of investigations was undertaken.

Accordingly, injections with starch-flour were made into the peritoneum and subcutaneous tissue, for the purpose of investigating the condition of the thoracic duct with reference to starch. Several successful experiments in both directions were made, and the thoracic duct was found to contain, besides lymph fluid and lymph elements, a large number of small starch-granules, together with fat. These experiments seemed to establish conclusively that starch is able to pass out from the lymphatics of the diaphragm, and, through the thoracic duct, reach the circulation; also that insoluble substances can be absorbed from the subcutaneous tissue, and so arrive in the circulation.

The next question presenting itself was the permeability of the epidermis for insoluble substances. The principal experiments in this direction have heretofore generally been conducted with mercury,—a substance by no means the most suitable for the purpose. Auspitz's previous investigations concerning mercury induce him to believe that the division of mercury can be made so fine by the process of inunction, that even when with the highest powers of our microscopes no more globules can be detected, the assertion that they are absent cannot positively be made; further, that mercury-globules do not show any sharply-defined form under the microscope, and, inasmuch as there is no chemical reagent which enables us to prove the presence of mercury in the skin or connective tissue, its employment is attended with some uncertainty. Considering, then, the disadvantages of mercury for the demonstration of the permeability of the epidermis, Auspitz instituted a number of experiments with starch-flour upon rabbits and human skin.

Two methods of solving the question here presented themselves: in the first place, to rub the substance into the skin, and then examine the internal organs, particularly the lungs, for the presence of starch; and, secondly, having rubbed the starch well into the skin, to examine the deep portions of the same for the granules of starch. Owing to certain difficulties which would attend the first method, the second plan was adopted, and in the following manner: A portion of shaved skin from the back of a living rabbit, together with the subcutaneous tissue, was cut out and stretched over a cork ring, the edges being fastened down by means of pins. This ring was placed on a perfectly clean glass slide and fastened down with putty. Starch-ointment was now thoroughly rubbed into the skin with the fingers for from fifteen to forty-five minutes, when the putty was removed, and the cork ring with the

stretched skin lifted up and turned over (the rubbed skin being now placed next to the glass), and again fastened down with putty as before. In this way the under surface of the skin and connective tissue was turned upwards and the layers were studied.

In two experiment, the inunctions were performed upon living rabbits in a similar manner, the skin being dissected but not entirely detached from the animals. The results were the same as in the former case. Similar experiments were made upon human skin taken from the cadaver, and in one case—that of a rabbit—carmine was mixed with the flour. The following results were obtained: In the teased-out preparations of muscle, subcutaneous tissue, and corium there was abundance of fat in a finely-divided condition. Throughout the fat were isolated starch-granules, as well as here and there groups of them, mostly of the smaller variety, and reacting with iodine. The quantity of starch present was much greater in the skin of the rabbits than in the human integument. After the above examination, the skin was thoroughly cleansed with soap, then hardened in alcohol, and fine sections made. Accumulations of starch were found in quantity upon the external surface of the epidermis, penetrating, however, but a short distance into the epidermis. Generally they did not get beyond the epidermis proper, and seldom as far as the deepest layer of the rete Malpighii, while still deeper they were found only exceptionally and usually as single grains surrounded with fat. These scattered starch- and fat-particles permeated the whole skin unevenly, and, as before mentioned, were more numerous in the rabbit than in the human tissue. The openings of the sebaceous glands and hair-follicles, which chanced to come in the way of the sections, contained no starch-granules. The sweat-ducts, as well as the glands themselves, were also free from starch-grains. The conditions found by these section-examinations are valuable to the extent that they corroborate those found in preparations teased out.

This last series of experiments, then, proves that fat in a finely-divided condition, as well as starch and insoluble coloring-matter, as carmine, is able to penetrate the epidermis, when rubbed in in the form of an ointment. Further, that rubbing in for fifteen minutes upon the human skin and upon that of rabbits suffices the purpose. These experiments, moreover, prove conclusively that the horny layer of the epidermis is a barrier to the entrance of insoluble matter, which can be overcome only by strong pressure, the thicker and more compact the epidermis the more difficult being the entrance.

If we now sum up the results of all the experiments that we have been considering, we shall arrive at the following conclusions:

1. That, in mammals, insoluble matter (starch-flour granules) starting from the peritoneum and subcutaneous tissue is able to reach the lungs, and through these organs to enter the general circulation.
2. That these granules, in order to go over into the veins, pass through the lymphatic system. (That they are taken up exclusively in this way, is not as yet proved.)
3. That the epidermis always presents a considerable, though only relative and not absolute, obstruction to the absorption from the integumentary surface.
4. That the absorption is essentially promoted by the mediation of fat, which goes over into the circulation in the same manner as starch-flour, though even more easily.

Finally, the supposition may be offered, even if the direct proof is provisionally deficient, that all that is true of starch-flour, and in a higher degree of fat, may also be asserted of other insoluble bodies of finer division and, therefore, less permanence of form than the starch-flour. This supposition is not in any way

contradicted by the discoveries of Auspitz made in connection with his well-known inunction experiments with mercury.

CASE OF ACUTE TETANUS

FOLLOWING A PUNCTURED WOUND OF THE RIGHT FOOT, AND PROVING FATAL IN LESS THAN TWENTY-FOUR HOURS.

BY RUDOLFO VALDIVIESO, M.D.,

Resident Physician at the Children's Hospital.

HANNAH F., nine years of age, was admitted to the Children's Hospital on the 26th of July, 1871, suffering from a punctured wound of the plantar surface of the right foot.

The accident took place six days previous to her admittance to the house. Although the wound at first apparently did well, the effort of coughing or sneezing was followed by hemorrhage, so that the patient sustained a considerable loss of blood.

Condition when admitted.—The patient was rather nervous, countenance pale, pulse from 90 to 100 in a minute, surface cold and the appetite poor. The wound was healed, but there was a pulsating tumor underneath the skin, covering an extent of about a square inch.

Five hours after her admission the wound commenced to bleed, but the hemorrhage was checked by the use of Monsel's solution and the application of a graduated compress.

The next day, at 11 A.M., she complained of severe pain in the foot, which was relieved by three doses of hydrate of chloral (gr. v each).

On Saturday, July 29, Dr. John Ashhurst, Jr., saw the case, and, having etherized the patient, explored the wound, first enlarging it by a crucial incision. An old clot of blood, about the size of a bean, was found in the wound, but no foreign body. The operation was attended with but little bleeding, and the source of the previous hemorrhages could not be detected. As a precautionary measure, the wound was packed with lint and a graduated compress applied, the leg flexed on the thigh, and pressure made over the artery by means of a roll of bandage secured in the popliteal space.

I visited the patient at 3 P.M. At this time she complained only of pain in the stomach and of difficulty in swallowing, which I attributed to the after-effects of the ether.

Dr. Ashhurst again saw the patient at 4 P.M., and found her condition satisfactory.

During the ensuing night she was very restless, and the next morning, at 5.45 A.M., I was called to her bedside, when I found her in a critical condition. The jaws were firmly closed, her limbs rigid and contracted, and opisthotonos existed. The respiration was difficult and abdominal in character, the walls of the thorax remaining fixed. The pupils were dilated; the pulse from 100 to 110 in a minute; the mind perfectly clear.

I immediately removed the bandage and the packing of the wound, and examined it very carefully, but could not detect anything abnormal in it.

I ordered an ice-bag to be applied along the spine, and cold water to the forehead. I endeavored to administer a solution of morphia by the mouth, but desisted on finding that two or three drops nearly choked the patient.

After consultation with Dr. Rex (who saw the case in Dr. Ashhurst's absence), we agreed upon the administration of calabar bean, hypodermically, as the child could not swallow. Fifteen minims of a solution (gr. ij to f3vj) were injected at 9.15 A.M. Ten or fifteen minutes afterwards the condition of the patient had

improved. She could now swallow, and her respiration was decidedly easier.

At 11 A.M. the ice-bag was removed from the spine, and frictions were made with oil of turpentine.

At 11.30 A.M. the child was comparatively well, and was then able to open the mouth sufficiently to allow the administration of food, though slight opisthotonos still existed. Forty-five minims of the same solution of calabar bean which had been used hypodermically were now given by the mouth, while beef-tea, milk, and ice-cream were freely administered.

About 7.30 P.M. it became evident that the patient was growing worse, and, as she could no longer swallow, I discontinued medications by the mouth.

At eight o'clock she was very feverish, and constantly asking to have her head and hands bathed with cold water. Her respirations were short and frequent; pulse 140; very high temperature.

At 11 P.M. she had a convulsion, and for a moment I thought she was dead. The face became completely purple; neither pulse nor palpitation of the heart could be detected. The lower jaw fell, and complete relaxation of the muscular system followed. I tried artificial respiration (Sylvester's method), and for a few minutes with success; but the rigidity became so excessive that the entire body could be lifted by placing the hands under the head. A second convulsion occurred at 1 A.M., but was not so severe as the first. From this time until 4 A.M., when death took place, convulsions followed at short intervals. Complete relaxation of the entire muscular system occurred shortly after death. No post-mortem examination was obtained.

The pupils were not affected at any time by the administration of the calabar bean, which was given as follows:

9.15 A.M., hypodermically, ℥xv; 11.30 A.M., by the mouth, ℥xlv; 1.15 P.M., by the mouth, ℥xlv; 3.15 P.M., by the mouth, ℥xlv; 5.15 P.M., by the mouth, ℥xlv; 7.15 P.M., by the mouth, ℥xlv; 9.15 P.M., hypodermically, ℥xx; 11.15 P.M., hypodermically, ℥xx; 1.15 A.M., hypodermically, ℥xx; 3.15 A.M., hypodermically, ℥xx.

In all, five fluidrachms and twenty minims of the solution, or nearly two grains, were given in the course of eighteen hours.

THE HYPODERMIC USE OF THE SULPHATE OF QUINIA.

BY FRANCIS L. HAYNES, M.D.,

One of the Resident Physicians at the Episcopal Hospital.

WE see little concerning this method of administering quinia in the medical periodicals of to-day. Although formerly received with favor, it is now, I think, viewed with distrust by medical men generally. There is, without doubt, good foundation for such a feeling. We have all read or heard alarming accounts of the irritating effects of quinia used in this manner. Thus, Prof. Fonssagrives mentions* two cases in which fatal tetanus followed the hypodermic use of sulphate of quinia dissolved in sulphuric acid and water. Dr. Mitchell, of New Orleans, records† a case in which a deep ulcer, and, finally, fatal tetanus, followed the injection of sulphate of quinia. He does not inform us of the way in which the salt was prepared for use.

It is possible, however, that the bad effects of this method are caused by the large quantity of acid used in dissolving the sulphate, and not by the salt itself. The following experiments and cases tend to support this opinion. They were made upon a healthy adult male.

The first two experiments were made in order to establish standards with which to compare the effects of the subsequent experiments.

Experiment I.—One fluidrachm of distilled water was injected over the left biceps muscle of a healthy man. Slight pain, tenderness, redness, and swelling ensued. All these symptoms disappeared in a few hours, except the tenderness, which lasted four days.

Experiment II.—One-half a grain of sulphate of quinia was dissolved in acetic acid, and sufficient distilled water added to make half a fluidrachm. This was injected over the left long supinator muscle of the radius. Intense stinging and burning pain attended and followed the injection. On the next day, the skin at the point of injection sloughed to the extent of a patch 9 lines by 3 lines, and one-half of the surface of the forearm became quite red, swollen, tender, and painful. Three days afterwards the pain, swelling, and redness had disappeared. The tenderness persisted until the tenth day. Serum exuded beneath the patch of dead skin, which dried up and formed a thick scab, and which fell off on the thirty-second day after the injection, leaving a depressed cicatrix.

In the succeeding experiments and cases quinia suspended in Bower's glycerine was used. The sulphate of quinia was 'carefully "rubbed up" with the glycerine (in the proportion of not more than gr. iv. to ℥i). The only inconvenience in the use of this mixture resulted from the fact that the glycerine is apt to dissolve the cement used to unite the different portions of the syringe. When very thick glycerine was used, it was diluted with distilled water.

Experiment III.—Injected into the right forearm half a grain of sulphate of quinia suspended in half a fluidrachm of glycerine. The only symptom was very slight pain attending the injection.

Experiment IV.—Injected into the same arm, on the same day, one grain of quinia suspended in ℥i glycerine. There was a little more pain, with some redness, which lasted a few minutes. The point of injection remained slightly tender for two days.

Experiment V.—Injected into the right forearm gr. ij quinia with ℥i glycerine. There was slight pain for five minutes. The seat of injection became prominent. At the apex of this prominence a livid spot appeared, which was enclosed in a ring of white bloodless skin, surrounding which was a narrow border of red. This persisted for only a few minutes, and was unattended by any disagreeable sensation. The next day there was no redness, pain, or swelling, and tenderness could just be detected.

Experiment VI.—Injected four grains of sulphate of quinia suspended in ℥i glycerine. The same appearances as in *Experiment V.* presented themselves. The next day tenderness barely remained.

The following are cases of malarial fever in which the above-described mixture was used:

Case I.—P. H., male, æt. 50, was admitted to the Episcopal Hospital March 23, 1871. Has had quotidian intermittent fever for ten days. The last paroxysm occurred on the day of admission at 10 A.M. On the evening of the 23d, I injected into the right arm under the skin covering the biceps muscle gr. iv sulphate of quinia suspended in ℥i glycerine. He received no other treatment, and was discharged—the chill having failed to recur—on the 25th at 12 M. The only symptoms produced by the injection were slight elevation of the skin, and pain lasting for five minutes.

Case II.—W. D., æt. 45, seaman, was admitted March 28, 1871. Has had various forms of malarial fever for five months. The disease was temporarily checked, but reappeared on the 26th. On the 27th, the paroxysm recurred at 9 P.M.—the cold stage lasting four hours, the hot stage five hours. On admission he was very weak and emaciated, and presented the malarial cachexia in a marked degree. At 3.30 P.M. of the 28th, I injected gr. iv sulphate of quinia suspended in ℥i glycerine. 29th, no chill; no inconvenience at the seat of injection. At 6.30 P.M. I injected two and two-thirds

* *Lancet*, July 6, 1867.

† *Abstract of the Medical Sciences*, vol. xlv. p. 100.

grains of sulphate of quinia; 30th, sitting up for the first time since admission; 31st, slight pain and very slight swelling at the seat of the second injection. This was the only day on which any inconvenience was felt from either injection. The paroxysm having failed to recur for three days, tonics were now administered by the mouth. He rapidly improved, and was discharged well on April 10.

Case III.—L. L., female, æt. 44. April 14, a paroxysm of intermittent fever; on the 16th, another; on the 17th, she was admitted. She is very debilitated. At 12 M. I injected gr. iv sulphate of quinia into the arm; 18th, repeated the injection at 9 A.M. At 10.30 she had a slight flush of heat, followed by perspiration, lasting for a few moments. On the 19th, there were slight redness and pain at the seat of the first injection. On the 24th, nothing abnormal could be discovered at the seat of the first injection; the seat of the second was red and tender over a spot one inch in diameter. Next day the redness was much less, and it soon entirely disappeared. On the 30th, the patient was discharged, entirely well,—having received no further treatment.

Case IV.—S. G., male, æt. 32, admitted June 16. Has suffered from tertian intermittent fever for fourteen days. Last chill occurred on the 15th at 10 P.M. On the 17th, gr. iss sulphate of quinia were injected into the forearm at 9 A.M.; at 7 P.M., gr. vi were injected. 20th, no recurrence of the paroxysm. Ordered tonics by stomach. Slight redness and pain were the only local symptoms produced by the injections. The patient was discharged well on the 27th.

NOTES OF HOSPITAL PRACTICE.

UNIVERSITY OF PENNSYLVANIA.

CLINIC OF PROF. AGNEW, JUNE 28, 1871.

Reported by Dr. Elliott Richardson.

DEPRESSED FRACTURE OF THE SKULL.

THE patient was a boy fifteen years of age, presenting a small depression in the parietal bone, near the position of the anterior fontanel, a little to the left of the median line of the skull. About six years ago he received a blow from a pick, which caused the injury described. He experienced no inconvenience from it until five months ago, when epileptic fits made their appearance. These have occurred at variable intervals since that time, sometimes a month elapsing without their occurrence.

When presented at clinic, the seat of fracture was found to be very sensitive to pressure. Slight paralysis of the right side was noticed, but he was able to walk well, and did not trip or fall. His memory was not much impaired. He had been attending school, but pursued his studies with difficulty. His appetite was good.

Prof. Agnew said these symptoms occur at variable intervals after the receipt of injuries of this character. He thought that the intellect was not yet sufficiently impaired, nor the convulsions sufficiently frequent, to warrant the operation of trephining, but would recommend the administration of bromide of potassium in doses of ten grains three times a day, to be increased after a week or two to fifteen or twenty grains three times a day. If by the following September the symptoms should be more unfavorable, then an operation for the removal of the depressed fragment of bone would be advisable.

INGUINAL HERNIA.

A colored woman, twenty-four years old, had a tumor in the right groin presenting all the characters of hernia. It was an oblique inguinal hernia, about the size of a walnut. She had had it for about a year, and had always been able to reduce it without difficulty until last Sunday, the 24th inst., when, efforts to reduce it having failed, it became the seat of much pain, and vomiting ensued.

The patient was placed upon her back, with her knees and shoulders elevated, when Prof. Agnew, by careful manipulation, succeeded in its reduction. He then directed a com-

press to be applied and retained until a truss could be procured.

EPITHELIOMA.

The patient, a man aged fifty-five years, had suffered from epithelioma of the lower lip for the past two years, during which time it had been treated by empirics with various cauterizing agents. It commenced as a little crack in the lip.

When presented at clinic, he had a large and very foul ulcer, with an augmented secretion of saliva, which, flowing over the sore, was a cause of increased irritation. A large portion of the lip on the left side had been destroyed, and the lymphatic glands of that side of the neck were much enlarged.

Prof. Agnew said the only operation to be suggested in this case would require the removal of a portion of the lower maxillary bone; and, as the lymphatic glands were involved, even this would probably prove ineffectual.

These growths, the lecturer said, should be removed early, while confined to the lip; and in this case he would only advise the internal use of the iodide of arsenic in doses of one-eighteenth of a grain three times a day, together with tonics and the local application of subnitrate of bismuth.

HYSTERIA.

This woman, aged twenty-one years, gave the following history:

Last September she had a child, since which she had been subject at times to pain in the pit of the stomach, and, at the same time, to loss of voice. These spells continued for two hours at a time, and recurred daily, sometimes for two weeks together.

After a thorough examination of the throat, chest, and abdomen, and no organic disease being discovered, the trouble was pronounced to be of a hysterical nature.

ABSCESS OF THE HAND.

This case, a man aged twenty-nine years, illustrated a complication not unusual in injuries of the fingers,—viz., palmar abscess. On the 1st of the present month the thumb and two fingers of the right hand were mutilated by a circular saw, and a few hours afterwards amputation of portions of the lacerated members was performed at this institution. Abscess had followed in the radial side of the hand beneath the palmar fascia.

The abscess was opened by a free incision in the cleft between the thumb and the index-finger, and the patient directed to keep it poulticed until the parts heal.

EPISCOPAL HOSPITAL.

Reported by Louis Starr, M.D., Resident Physician.

RUPIA.

M. K., æt. 60, white, widow. She first came to the Hospital Dispensary on June 26, 1871, suffering with an ulcer situated upon the forehead, above the eyebrow. The members of her own family were all healthy; her husband, who died eight years ago from the effects of an accident, had, so far as she knows, no constitutional disease; and her two children, both of whom are now dead, enjoyed good health up to the time of their death from some acute disease.

Six years ago she received a scratch upon the forehead, at the seat of the present ulceration, from the nails of a child she was nursing; at the time the child was well, and has continued so since: she was, however, in bad health herself. This scratch did not heal, but gradually spread, and in a year developed into an ulcer, and became covered by a thick, dark scab, which she describes as having been wider at the base than at the apex, and laminated; after a month or two this became loose and fell off, leaving a deep ulcer, which was covered by a greenish pus, and discharged freely for some time, before another scab formed.

From that time up to the date of her appearance at the hospital, crusts presenting the above characteristics have continued to form and fall off; she also states that she had a gnawing pain in the bones, which was most marked at night; but there is no eruption on any other part of her body. Dur-

ing a portion of this period she was engaged in cooking, which probably aggravated her condition, as she was obliged to give it up on account of the great pain in the ulcer, produced by the heat of the fire.

She had been treated in many ways, and she states that the mode of treatment seemed to make a difference in the thickness and duration of the scabs, as well as in the amount of discharge, but that the ulcer never healed, though it was several times reduced in size.

On coming to the hospital she was put upon iodide of potassium and bichloride of mercury internally, and directed to use an ointment consisting of calomel and benzoated oxide of zinc. This treatment was continued without effect until August 10. At that time the ulcer was one inch in diameter, circular, with edges slightly raised, discharging freely, and showing no tendency to heal; there was a burning sensation in the part, and pressure caused much pain, but no bleeding from the few granulations present. The surrounding skin was pale and unhealthy.

The above treatment was continued, except that the iodide of potassium was alone used internally, until August 17; on that day straps of adhesive plaster, one-fourth of an inch wide, were applied to the ulcer, the strapping being begun half an inch below the sore on the sound skin, and extending the same distance on each side and above it. The straps were drawn moderately tight, each one overlapping one-third of the one before it. The straps were reapplied on August 18, 19, 21, 23, 25, and 29. For the first two days the discharge continued, on the third it was greatly diminished, and there has been none since; the pain decreased rapidly, until on the fourth day of the dressing it was noticed only as a slight pricking sensation; from day to day the surrounding tissue became more healthy, the edges less elevated, and the ulcer soon began to skin over; the latter process went on rapidly until the sore was reduced to half its original size, but has been more slow since.

September 1.—To-day the ulcer is entirely covered by a pale skin, and the slight pricking pain, above noted, has nearly disappeared; she still complains of the gnawing pain in the bones, but her general health and spirits are much better. The straps were reapplied for the eighth time, merely to give support, and she was discharged, with the order to continue the iodide of potassium for a short time longer.

CASE OF POISONING BY OXALIC ACID.

Maggie —, aged about one year, was brought to the Dispensary of the Episcopal Hospital, April 26, 1871. Her mother stated that half an hour before coming to the hospital, her nurse had given her what she supposed to be a piece of sugar: as soon as the child had swallowed this, she was seized with vomiting, which had continued up to the time of her appearance.

The patient, when seen, was in a relaxed condition, her face pale, and her lips blue; she was evidently suffering much pain, which was increased when pressure was made in the epigastric region; there was constant retching and vomiting, the ejected matter consisting of a frothy, watery fluid.

Supposing that the little sufferer had been poisoned by acetate of lead, tannic acid was given, but it was immediately rejected; lime-water, and afterwards magnesia, was administered with like effect. The vomiting was, however, finally arrested by creasote gtt. iij. Soon after this the child became free from pain, and fell asleep; after several hours she was discharged, none of the symptoms having returned.

Examination of Ejecta.—After standing a short time, a brownish precipitate fell to the bottom of the vial containing the vomited matter, leaving above a clear transparent fluid of a brownish tinge.

Upon microscopical examination of the precipitate a number of long columnar quadrangular crystals of oxalic acid were discovered, together with epithelial cells and some crenated blood-corpuscles.

On adding lime-water to a portion of the supernatant fluid, a white precipitate formed, which under the microscope showed dumb-bell crystals. Upon treating another portion with a solution of sulphate of copper, a bluish-white precipitate fell, showing the fluid to have contained oxalic acid.

CONTRAINDICATIONS TO THE USE OF DIGITALIS.—Dr. J. M. Fothergill, in his Hastings Prize Essay on Digitalis (*British Medical Journal*, July 29, 1871), makes the following important remarks on this subject:

"It is necessary to review the circumstances which may modify our views as to the desirability of administering or withholding digitalis. We have seen that it acts by producing contraction of the heart, and, to some extent, contraction of the capillaries (or arterioles and venules). It is obvious, then, that an increased arterial tension resulting therefrom will test the integrity of the structures intermediate, namely, the arteries. It is, then, of primary importance to ascertain and bear in mind the condition of the arterial system, and to conduct our treatment accordingly. Thus, atheroma or endoarteritis is commonly associated with cardiac complaints, and more especially with those manifestations of over-taxation for which the patient consults us. The primary consequence of atheroma is hypertrophy, which sooner or later yields to fatty degeneration, in the manner described in an early section. This exceedingly complicated condition is frequently presented to us, and increases the difficulty of adopting a treatment which secures the maximum of good and the minimum of risk. Thus, while the increased action of the heart (the hypertrophy) supplements the inelastic condition of the arteries, and restores the balance of the circulation, it is in itself not without an alloy, for the atheroma is most marked at those points where there is the greatest pressure, and thus the increased action tests these weak points most severely. Thus, in the thin-walled vessels at the base of the encephalon we have often rupture. So in our treatment of cardiac debility with or without hypertrophy, we must be guarded and watch the effect of our remedies most narrowly. In the palpitation of hypertrophy, this is especially necessary. It is, however, possible with care to get at what is desired without any imminent risk, but small doses alone are admissible; and until the practitioner has familiarized himself with all the complex relations of this condition, and can wield his remedy with skill and confidence, it may be safer to resort to some other agent. It is within the limits of possibility to reach the honey and yet avoid the sting, but the attempt must only be made after careful calculations as to the force of the pulse, the state of the vessels, the amount of palpitation or irregularity, and a critical weighing of the different factors.

The presence of atheroma to any extent is the contraindication par excellence against the use of digitalis. In considering the conditions which contraindicate the use of digitalis, it is necessary to investigate the importance of fatty degeneration of the heart itself. Brunton has, from a consideration of the increased capillary opposition, warned us against its use in fatty degeneration; his objection is, however, only a theoretical one, though unquestionably rational. Reith and Gull have also made a similar objection, but on other grounds.

"The occurrence of intermittency during the administration of this agent has hitherto been deemed a valid contraindication; and certainly, if we feel assured that it is the consequence of the drug, it is an evidence of its physiological effects being reached. Thus, if along with it we find the pulse becoming thready, the heart's action becoming a steady thud, a diminution in the bulk of urine, showing a lessened pressure on the glomeruli of the kidney, then it may be necessary to withdraw the digitalis. It may, however, not only be no contraindication to its use, but even be the strongest evidence of the need for its administration in increased quantity. Thus, where any obstacle is presented at all suddenly to the circulation, and digitalis is given, intermittency may come on as the result of the heart's inability, in spite of the stimulus to contraction, to struggle against it; and the administration of the agent in increased quantity may be clearly indicated."

THE USE OF CAMPHOR IN HOSPITAL GANGRENE.—M. Netter (*New York Medical Journal*, June, 1871), of the Military Hospital of Rennes, has found camphor in powder very efficacious in hospital gangrene, by sprinkling it abundantly over the wound. In his service, as well as in that of M. Aubry, surgeon of the same institution, this affection had been treated by the usual means,—chloride of iron and carbolic acid, with alcohol,—but without success. By using very freely the powdered camphor, three patients were successfully treated, and in forty-eight hours the disease disappeared from the hospital.

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EDITORIAL.

THE COMPLETION OF THE FIRST
VOLUME.

IN bringing to a conclusion the first volume of *The Medical Times*, the editors feel that they have good cause for congratulation in the success which the journal has already attained. When, a little more than a year ago, it was determined to add another to the numerous medical periodicals of the country, the enterprise appeared to many unnecessary, and doubtless there were some who predicted its speedy failure. It seemed, however, to the friends of *The Medical Times* that there was room for a semi-monthly journal which should thoroughly represent the progress of the medical sciences not only in this country, but also abroad. The present editors are aware that much of the reputation of *The Medical Times* is due to the able manner in which the first twelve numbers were edited by Dr. William Pepper, who assumed the duties of editor in consequence of the illness, and until the death, of Dr. Edward Rhoads, to whose care the interests of the journal were at first intrusted. It has been their constant aim to render the succeeding numbers equal to their predecessors; and they feel much pleasure in the fact that *The Medical Times* continues to be more generally quoted by medical journals abroad than any similar journal in this country. They believe, also, that the contents of the first volume will compare favorably for character and variety with those of any other medical periodical issued during the same period of time. No other journal can show a list of collaborators containing the names of more distinguished physicians than that which is attached to this; and a glance at the table of contents will show that most of these gentlemen have not contented themselves with allowing their names to grace the prospectus, but have manifested their interest in its prosperity by contributing valuable papers to its pages.

The editors intend in the new volume to devote a portion of the journal, under the head of Leading Articles, to communications in which subjects of interest to the medical profession may be discussed, the name of the writer of the article appearing, or not, as he may choose; but no paper on any subject will be inserted if the name of the author is withheld from the editors.

The editors, therefore, look forward with confidence

to the commencement of a new volume, expecting, as they do, to receive the same generous support which has hitherto been extended to them by the profession not only in this city, but also throughout the United States, and promise on their part not to relax their efforts to make *The Medical Times* the best journal of its kind in the country.

THE FUNGAL THEORY OF ZYMOTIC DISEASE.

WE had hoped that this phantom theory, which certain men have been so long and so ardently pursuing, had at last been chased into marshes, so universally recognized that every one would at a glance perceive the will-o'-the-wisp character of their offspring. But fighting with shadows is always dubious work, and we find that we were mistaken in the belief that sufficient of time, brains, and ink had been spent upon the subject to satisfy all. Dr. Sansom,* in a recent otherwise able work, has reasserted the old theory in a somewhat modified form. Badly wounded, however, does it now seem to be, even in the house of its friend and by his hands. The old arguments which we have been meeting for many years—familiar faces, which we thought had been so deeply buried as to defy the most enthusiastic resurrectionist—stare at us from every page. One of these, which Dr. Sansom seems most lovingly to claim as a powerful friend, was long ago brought forward (*Amer. Jour. Med. Sci.*) as an unanswerable, or at least unanswered, argument against the theory. This is the fact that in flies and other insects there are undoubted fatal affections produced by fungi. It was shown, however, that these diseases were essentially not zymotic,—that the fungi grew and permeated all the tissues, and were most readily demonstrated by the microscope; from which the evident inference was drawn that if human zymotic diseases were caused by fungi, the latter ought to be distinctly visible, and the former have a course somewhat parallel to that of the disease of the fly.

The work of Dr. Sansom is, as already stated, a severe blow to the theory he advocates. If, with all his ability and ingenuity, he can bring no more aid to its waning life, what hope is there for it? Yet we fear it is not yet dead; the fancies of men, dazzled by the splendid mirage which it raises before their eyes, will still cling to it, torturing imagination in its support.

The vitality of a lie is most wonderful; root it out and destroy it utterly, as you may fondly hope, yet it springs up where least expected, apparently as fresh as ever. It travels as though borne on the wings of the wind, while laggard truth labors far behind in apparently hopeless endeavor to counteract its influence. Although knowing this full well, yet we see with astonishment Prof. Salisbury quoted as authority,—a man who, when his

* The Antiseptic System: a Treatise on Carbolic Acid and its Compounds. By Arthur Ernest Sansom. Philadelphia, J. B. Lippincott & Co.

work was ridiculed and scoffed at, and when he was challenged to the proof, so failed to meet the challenge, that his warmest advocates abandoned him,—no less important a journal than the *Medical Times and Gazette*, after having spoken of him editorially as "The Great American Physician," (!!!) stating that unless he met the charges he was annihilated.

Space, time, and inclination are alike wanting us to follow Dr. Sansom through his long argument, much of which we think of no moment, since it proves points that no one doubts.

The gist of the matter may, however, be summed up in a few words, as follows:

All admit the universality of fungi, and also that they are occasionally found in the blood of men and animals dead of infectious disease; but the opponents of the theory have said and *proven* that the same fungi, or their germs, are found in healthy blood and secretions, and that in many cases of the various diseases in which at other times they are present they are no more apparent than in such healthy blood, and that their injection into the blood fails to develop the diseases in question: from which it inevitably follows that they are not to be looked on as the direct causes of the disease. No amount of speculative reasoning will at present avail anything to the fungalists. They must bring forward some new facts even to rightfully claim a hearing.

One very marked feature of this controversy is the ease with which the advocates of the fungal theory shift their position. Salisbury asserted that the fungi and palmellaceæ and their spores could be seen, in body and substance, in the blood, circulating everywhere. When he was placed at rest, peaceful and quiet, beneath the sod of general, total distrust, Hallier came forward to the aid of the dogma, modifying it very essentially. No fungi or spores are longer to be seen in the blood or tissues, but *micrococci*, minute masses of germinal fungal matter, whose existence or non-existence in the fluids or tissues can never be optically proven, because they possess no optical distinctive characters, but whose presence is to be recognized by their fruits. Isolating the secretions in a peculiar apparatus, and placing with them a little sugar and other substances for pabulum, he succeeded in growing peculiar species of fungi from blood taken from individuals sick with various zymotic diseases. Alas for Hallier, and alas for his theories, Dr. Billings, of Washington, on repeating these culture-experiments, reproduced the various species which Hallier described, first from diseased secretions and blood, next from healthy secretions and blood, and next from the sugar and material put in as pabulum; demonstrating that Hallier's disease-fungi were no distinct new species, but merely ordinary forms modified by peculiar circumstances of growth, forms whose germs were no doubt introduced into his culture-apparatus with the pabulum, although also almost certainly existing in all human fluids. A *coup de grace*, apparently.

But no! Dr. Sansom comes to the rescue,—a change of base; a new theory is brought forward, with the old name; a theory which has this advantage,—it is so in-

tangible as to be almost placed beyond the sphere of scientific research, and as little capable of being disproved as proved. According to this theory, the fungal germs exist as germinal masses in the diseased blood, in the micrococcus state. They do not, however, represent peculiar forms, but merely ordinary fungi, which owe their acquired fearful powers to peculiar conditions of soil and growth. We quote, from the work alluded to, testimony which is offered as proving the theory:

"Mr. Semmes, having demonstrated the existence of fungoid particles in the blood of glanders and the anthracic disease of cattle, tried many experiments on healthy beasts, by injecting fungus-elements into their circulation. The injection of *micrococci* ferments, of the *arthrococci* of acid fermentations, and of ordinary penicillium spores produced no result whatever: the beasts remained in perfect health. When, however, the penicillium was cultivated upon the blood of an animal infected with the anthracic disease, injection of its spores induced in another animal disease and death."

And this is soberly brought forward as supporting the fungal theory! Surely this discussion is waxing not only tiresome but puerile. A poison certainly exists in the anthracic blood,—most subtle in its nature. That fungi may be made to carry this poison is nothing strange; so will bits of wood or clothing. Would the man who stated that the cause of vaccine disease is steel, because the lancet is used, be considered worthy of a hearing? That fungi may act indirectly as the cause of blood-disease, by carrying poison or by producing decomposition in wounds and the consequent local production of the poison or poisons of septicæmia, is very probable; but that ordinary zymotic diseases owe their existence directly to these low plants is a very different theorem,—a theorem upon whose proof an extraordinary amount of time and energy has been spent with entirely negative results, every argument brought forward in its favor having been refuted almost as soon as enunciated.

Although this cannot be gainsaid, the continued homage paid by able intellects indicates that underneath all the absurdities of the fungal theories there must lie some hidden truth. Pure, simple error rarely draws to its support such an array of able men, whilst half-truths, imperfect truths, truths felt after rather than even dimly seen, often lead astray and infatuate the best of us. There must then, we think, be some truth towards which these various minds have been instinctively striving. There are, it must be acknowledged, some very strange facts, which point most decidedly to the connection of fungi or other low living entities with certain epidemic diseases, which may be grouped as malarious affections, the word malarious being used not in its strict sense, but as distinguishing diseases due to earth exhalations, from the contagious zymotic affections, such as smallpox. Of such malarious diseases yellow fever may be taken as a type. In its history are to be found numerous facts of the kind just spoken of. A city has been reeking and fermenting in its filth under the blaze of an almost tropical sun, but no fever develops itself until a vessel arrives from some port where the disease is prevalent, and, as though a fatal vital germ had been brought,

suddenly the whole mass of decomposing matter becomes vivified with deadly power. A man-of-war, with a healthy crew, although foul with stagnant bilge-water, stops at a port where yellow fever prevails. No cases occur on board whilst in the harbor, but when some days out at sea again a large part of the crew are simultaneously stricken down by the dread disease. The hatches are at once battened down, the hold of the vessel thoroughly scalded out with superheated steam, and the epidemic arrested. These facts, in the present twilight of our ignorance, certainly look as though life of some sort, most probably fungal life, was the ultimate cause of the fever. On the other hand, it appears more positive and certain that no living entity or particle is in the blood of the fever-stricken men, that had not previously existed there.

The two facts are, however, so readily reconcilable that it is strange their joint meaning has not hitherto been clearly pointed out. A fungus grows in some water containing sugar, and the drunkard reels homeward at midnight. Without the fungus the alcohol had not been; but the alcohol, not the fungus, is the immediate cause of his disease,—drunkenness.

It does appear as though in yellow fever we had a parallel to this. A fungus grows in the ship's bilge-water or the city's refuse-heap. Itself harmless to man, its educts, the principles produced by the fermentation it causes, are the deadly yellow-fever poison. Wherever these educts are in the air, the fungus must be in the neighborhood,—the two travelling together, as cause and effect must ever do. Such is our explanation of the facts. We do not offer it as a proven theory. As already stated, the present twilight is too dim to see things, save "as trees walking." We simply receive it as at present the most plausible explanation. It is most emphatically not a fungal theory of disease-origin, at least of the same nature as the old ones. It rests upon the very denial of the existence of poisonous fungi in the blood. It does not appear at present to apply to the so-called zymotic diseases, in which the poison is multiplied in the blood,—only to the malarious affections, in which the poison is multiplied outside of the body.

THE CONDITION OF THE BONES IN THE INSANE.

ATTENTION has been recently directed in several of the English periodicals to the fact that the bones, and especially the ribs, of the insane are very frequently and very readily broken; in other words, this class of persons appear to be affected with osteomalacia in relatively greater number than the rest of the community. The fact is, however, not altogether a new or unknown one, for Mr. Solly has reported in the "*Medico-Chirurgical Transactions*" the case of a young woman who was the subject of this disease, and who was also insane; and of the one hundred and forty-five cases which Mr. Durham has collected, and which are analyzed in vol. x., 3d series, of the "*Guy's Hospital Re-*

ports," eight occurred in insane patients. More recently, Dr. Rogers and Dr. J. C. Brown have contributed to the "*Liverpool Medical and Surgical Reports*" a paper "*On Fractured Ribs in Insane Patients.*" Dr. Ormerod and Dr. Hearder have also written on the same subject, the former having published in the last volume of the "*St. Bartholomew's Hospital Reports*" some "*Observations on a Peculiar Condition of the Bones of Two Insane Patients who had Fractured Ribs,*" and the latter a paper in the "*Journal of Mental Science*" for January, 1871, on "*Fractured Ribs in Insane Patients.*" In the cases reported in these communications, the ribs were broken by causes which would have inflicted no injury in their normal condition; in some cases, indeed, the fracture seems to have been brought about simply by muscular contraction.

Occasionally the cause of death was the subject of investigation by the coroner, and at the inquest it was shown how little force was necessary to fracture the ribs, and how difficult, in consequence of the absence of crepitation, it would be to recognize the existence of fractures in patients affected with mollities ossium. In some cases the brittleness of the ribs was so great that they could readily be crushed between the thumb and forefinger, and in one case a small scalpel was pushed through the rib of a man "almost as easily as if it had been only a shell." A gentleman to whom some ribs were sent for a careful examination compared them in strength to card-board, and thought that during life they would have been fractured from very trivial causes,—as, for example, falling suddenly against a table at which the person was seated. Although the ribs are the bones which most frequently suffer, and in which the organic changes are generally most advanced, they are by no means the only ones which may be affected.

None of the writers whose communications have suggested this article seem to think that this excessive brittleness of the bones is necessarily dependent upon insanity, although a connection between the cerebral disease and the deficiency of the phosphates in the bones would appear naturally to suggest itself. Dr. Durham, indeed, says that in the histories of all the cases of mollities ossium which he has been able to collect, mention is made of the existence of some influence, or of some combination of influences, well known to be capable of producing great general depression of the nervous system; but the other authors all hold that the changes in the osseous system are independent of the cerebral disease, or at most that the mental and physical conditions are the common results of the same cause. Want, disease, distress of body and mind, old age, and all that brings on premature old age, will sometimes bring on this disease alone, or, acting with more force or upon more susceptible persons, will, in addition to it, cause insanity. It will of course be understood that all classes of the insane are not equally liable to mollities ossium, and that it occurs with greatest frequency in that class in which the mental disease is complicated with general par-

alysis or with any other condition which leads to general exhaustion.

Fractures are more liable to occur in insane sufferers from osteomalacia than in others, simply because they are often obstinate and quarrelsome, and seldom realize how ill and weak they are; so that, as Dr. Ormerod remarks, "a rib which would last a feeble, quiet, bedridden patient to the end of his days, might readily break under the wayward movements of a lunatic and the mechanical restraint, however gently and judiciously applied, necessary to control his movements."

The subject of the treatment of the insane is at present exciting considerable interest in this country, and there is a growing feeling among the uninformed that this unhappy class of people are, both in public and private asylums, the victims of violence: we have therefore brought the subject thus prominently to the notice of the medical profession, for, were physicians generally ignorant of it, the discovery of fractures at the autopsy of a person who had at any time been deprived of his reason might possibly involve in unmerited disgrace the institution of which he had been an inmate.

THE publishers of *The Medical Times* intend to issue a large edition of the number for October 1 (the first number of the new volume), for distribution among the students of the medical schools of Philadelphia. The editors will be glad to receive prospectuses of the public and private course of medical instruction given in the city. The number will be extensively circulated,—a fact to which we would call the attention of advertisers.

OBITUARY.

PROF. GEORGE D. BLACKMAN.—The death of this distinguished Western surgeon, lecturer, and clinical teacher, is a serious loss to the profession which he adorned. Although by birth a New Englander, his lot was cast for purposes of extended usefulness in Ohio, where his reputation grew rapidly and his abilities and skill were universally recognized. At the time of his death he was but fifty-two years of age, thirty-six of which had been devoted to the pursuit of medicine, for he seemed to have entered upon its study at the early age of sixteen, while himself a school-teacher in New Jersey. He graduated in New York; but his health appears to have suffered by too great mental tension in the acquisition of medical knowledge, and he therefore assumed the duties of surgeon of a sailing-vessel, settling down for a while in London after making several voyages. Here he made the acquaintance of the most distinguished surgeons, faithfully devoted himself to the various clinical advantages offered him, and became a member of the Medico-Chirurgical Society. When he returned to his own country, he became a frequent and liberal contributor to medical literature, especially in able reviews of prominent surgical works, and translated Vidal de Cassis' treatise on Venereal Diseases. He was appointed, in 1854, Professor of Surgery in the Medical College of Ohio,—a position held by him at the time of his decease. He was also Surgeon to the Cincinnati, Commercial, and Good Samaritan Hospitals. Some of the rarest, boldest, and most successful operations ever performed in this country were skillfully executed by him, both in private practice and in the

lecture-room; for in the latter he possessed not only the qualities of a brilliant lecturer, but also of a clear and earnest clinical teacher. During our late civil war he served as Surgeon of Volunteers. His death was ascribed to cirrhosis, with abdominal dropsy.

REVIEWS AND BOOK NOTICES.

RESTORATIVE MEDICINE. An Harveian Annual Oration delivered at the Royal College of Physicians, London, on June 21, 1871, by THOMAS KING CHAMBERS, M.D., etc. With Two Sequels. 12mo, pp. 85. Philadelphia, H. C. Lea, 1871.

The sarcastic question of one of the English Quarterlies, What have Americans done to aid the progress of civilization? could never have been asked by a physician of Great Britain. Earnest and true workers in science are of no country, and belong to but one party, wherever they may be; and we can point with as much pride to Louis, to Harvey, to Niemeyer, as to Rush, Mütter, Leidy, and others more strictly citizens of this country. It is not, therefore, surprising to find the utmost cordiality manifested between brethren, but we accept as a good omen the words of Dr. Chambers: "Across the Atlantic and Pacific there are bands of relatives whom we are much prouder to claim [than those in Europe], and to exhort to mutual love and affection in a tongue that recalls the fact of blood being thicker than water. This year the Oration, though delivered in England, shall be printed and published in America first." The essay contains so much material that little more than a superficial glance at it can be taken. After showing that previous practice of medicine was based upon the supposition that disease is something more than life or health, the author goes on to prove that present ideas of treatment involve the notion of disease being something less than life. "To support the strength of the patient" is the axiom of modern medicine, as evidenced by the increasing use of tonics, stimulants, and nutrients. Passing from this, he next offers a few words upon the probable action of alteratives, believing that they are related to one another in virtue of their acting upon the white fibrous tissues with which bones and trunk-nerves are sheathed. In cases of defective vitality of the periosteum and pericranium the iodides and bromides act like a charm, while they have little value in affections of other tissues. Then, glancing at that bugbear of physicians, inflammation, he stamps it with the following brands: pus is prematurely expelled germinal matter; heat, swelling, and redness are due to a loss of elasticity in the smaller arteries; urate of ammonia, uric acid, and oxalates in the urine, and excess of fibrin in the blood, are due to defective oxygenation; while the whole process is a perversion of nutrition, and is a cooling, not a kindling, of the furnace in respect to chemical power. This nomenclature is sufficient proof of the author's foremost position among medical men, and is in striking contrast to the ignorant pedantry of too many writers on this subject. Germs, skin-grafting, peristaltic action of capillaries, occupy in turn a portion of the discourse, and then comes a sentence to which we would ask especial attention: "Surely the chairs of materia medica would be better employed in teaching a class how to observe the action of medicines than in discussing varieties of cinchona bark or the shape of senna leaves." Believing that a practical knowledge of therapeutics and materia medica cannot be gained from lectures, we heartily endorse Dr. Chambers's opinion, as a means of correcting many of the pharmaceutical errors constantly committed by physicians.

Sequel 1st is a dissertation, in colloquial style, upon the details of Restorative Medicine, and includes a few words about Education, which is defined as a bringing out of powers, not a cramming of geese.

Sequel 2d treats of the much-vexed woman question; and we are informed that in London the women have stirred up a good deal of opposition among the pupils by entering as middle-aged women and snatching away prizes in competition with lads. With a few remarks upon life, spirit, and matter, the

book closes. Advising the reader to examine it for himself, we thank Dr. Chambers for the most instructive and entertaining volume that it has been our pleasure to meet for some time.

ON THE PHYSIOLOGICAL EFFECTS OF SEVERE AND PROTRACTED MUSCULAR EXERCISE; with Special Reference to its Influence upon the Excretion of Nitrogen. By AUSTIN FLINT, JR., M.D., Professor of Physiology in the Bellevue Hospital Medical College, New York, etc. Reprinted from the *New York Medical Journal*, June, 1871. 8vo, pp. 91. New York, D. Appleton & Co., 1871.

In the *New York Medical Journal* for October, 1870, Prof. Flint published the result of some observations, based upon an examination of the urine of Mr. Weston, the pedestrian, during his walk of one hundred miles in twenty-one hours and thirty-nine minutes. Dr. Flint had no means of obtaining any reliable scientific information with regard to the amount and character of the food taken during that time, nor had he examined for purposes of comparison a specimen of the urine passed the day before the feat; while several weeks had elapsed after the walk before he could obtain a specimen of urine passed during twenty-four hours of comparative repose. He admits that the data were by no means those which he would have desired, and states also that he would never have published these results had he expected the opportunity on which the present paper is based. The results of these primary studies indicated a decided increase in the quantity of urea excreted during severe prolonged muscular exercise. It may be recollected by some that this paper of Dr. Flint's was made the subject of criticism by Dr. Anstie, the accomplished editor of the *British Practitioner*, in vol. v. p. 353 of that journal, in which Dr. Anstie claimed that the principal source of the urea was not the waste of muscle, but the nitrogenous food consumed by the pedestrian. In the present observations, however, every precaution was observed. Assisted by a corps of eminent and experienced gentlemen,—physiologists, chemists, physicians, and even surgeons,—Prof. Flint left nothing unprovided for. The quantity of food was carefully weighed, and thence the proportion of nitrogen ingested was calculated. The urinary and fecal excreta were all retained, weighed, and analyzed; carefully-prepared tables contain the results of such analyses. The experiments covered a total period of fifteen days,—five days previous to the walking feat, five days during it, and five days succeeding it; so that it is permitted the reader to make a comparison of the results of each period. Such a comparison of the amount of nitrogen ingested with that excreted under these circumstances of prolonged exercise shows a decided excess of the latter, while the correspondence of the actual loss of weight with the theoretical loss as calculated from the excess of nitrogen eliminated during the period of prolonged exercise is truly striking. Thus, the actual loss of weight during the five days of the walk was 1565.00 grammes. The total quantity of nitrogen discharged in the urea and feces during this period, in excess of the nitrogen taken in with the food, was 40.030 grammes. Assuming that three parts of this nitrogen represent the waste of one hundred parts of muscular tissue, the loss of muscular tissue, calculated from the nitrogen excreted, would amount to 1334.33 grammes, leaving only 230.67 grammes, or less than half a pound, unaccounted for, which might be fat or water.

We feel assured of the accuracy of these experiments, and are satisfied to accept Dr. Flint's results. We confess also to a feeling of surprise that the experiments of Fick and Wislicenus, covering an entire period of less than twenty-five hours, should have been allowed as much weight as has been permitted them, entirely changing the pre-existing views on this subject. The theory which these observations are supposed to prove is thus stated by the authors:

"A bundle of muscle-fibres is a kind of machine consisting of albuminous material, just as a steam-engine is made of steel, iron, brass, etc. Now, as, in the steam-engine, coal is burnt in order to produce force, so, in the muscular machine, fats or hydrates of carbon are burnt for the same purpose; and in the same manner as the constructive material of the steam-engine (iron, etc.) is worn away and oxidized, the constructive material of the muscle is worn away, and this wearing away

is the source of the nitrogenous constituents of the urine. This theory explains why, during muscular exertion, the excretion of the nitrogenous constituents of the urine is little or not at all increased, while that of the carbonic acid is enormously augmented; for in a steam-engine, moderately fired and ready for use, the oxidation of iron, etc. would go on tolerably equably, and would not be much increased by the more rapid firing necessary for working, but much more coal would be burnt when it was at work than when it was standing idle."*

Such a period is quite too short, even should the results coincide with those of a longer period. We presume, however, it may be objected by the opposite school of physiologists that the methods employed by Dr. Flint involve the possibility of certain inaccuracies which might still invalidate the results, and that the only infallible way of arriving at true results is to examine the excreta under circumstances of prolonged exercise, when no nitrogenous food whatever is ingested. We must admit, indeed, that such a method would alone be free from criticism, though, as we have already stated, we are quite satisfied to accept the conclusions of Dr. Flint as based on his own observations.

The sulphuric and phosphoric acids of the urine were increased during the walk, while the chloride of sodium was diminished,—the latter fact being probably due to the diminished amount of salt ingested during this period,—the close relation of the quantity of salt excreted to that ingested being pretty well determined.

TRAITÉ DE PATHOLOGIE INTERNE. Par S. JACCOUD, Professeur agrégé à la Faculté de Médecine de Paris, Médecin des Hôpitaux, etc. etc. Ouvrage accompagné de figures et planches en chromolithographie. Tome premier, 8vo. Paris, Adrien Delahaye, Libraire-Éditeur.

(A TREATISE ON MEDICAL PATHOLOGY. By S. JACCOUD, Professor Agrégé at the Paris School of Medicine, Hospital Physician, etc. etc.)

The recent unsettled condition of Paris made itself felt very acutely in one respect at least in this country, and that was in the entire loss to us of French medical literature. Much as we may have deplored the suffering attendant upon a long siege, and more recently upon a condition of anarchy and misrule, it is probable that, after all, the absence of French magazines and books from our tables gave rise to the keenest regret.

The book, the title of which heads this notice, must have left Paris at least a year before the late Franco-Prussian war, but, so far as we know, has not been noticed to any very great extent by American journals. The first volume is all that has as yet reached us, and we do not know whether or not the succeeding volumes have been issued.

Many of our readers may perhaps be familiar with the author's previous works, especially with "Les Leçons cliniques médicales," which appeared in 1867, and which is deservedly popular in this country, as it is, we believe, in France. We understand that at one time one of our publishing houses entertained the proposal to publish a translation of these lectures; and we must regret that it was thought at last inexpedient to do so. Clinical lectures, when good, are universally popular, but, we are inclined to think, not so instructive as the severer treatises. In fact, we are not sure that they ought not to be considered as medical light reading, useful as adjuncts to systematic works, fixing certain points, it may be, more definitely in the student's mind, but never to be relied upon to the exclusion of the systematic treatises. Still, they are popular, and it is probable that M. Jaccoud's last work will not be so generally read as its predecessor.

The first part of the work on "Medical Pathology" is devoted to a consideration of general pathology. M. Jaccoud's views on inflammation are exceedingly simple. Attaching a certain amount of importance to the alterations in the composition of the blood, he nevertheless is disposed to attribute the larger share in the alteration which the tissues themselves undergo, to modifications in the cellular elements of these

* Fick and Wislicenus, On the Origin of Muscular Power, *London, Edinburgh, and Dublin Philos. Mag.*, January-June, 1866, vol. xxxi. p. 492.

tissues. This modification consists in an exaggeration of the nutrition of these cells, the presence of which the microscope will generally enable us to recognize.

The most interesting part of the work to us are those chapters which treat of cerebral diseases and their diagnosis. The diagnosis of the seat and nature of cerebral lesions has generally been considered one of the most difficult problems submitted to the physician for solution. This difficulty has in part arisen from the fact that the symptoms which accompany tumors of the brain are in large measure dependent upon the tissue-changes which are excited by their presence in the cerebral matter immediately surrounding them, and in part because we are still ignorant of the functions of the different parts of the brain. Although he does not pretend to clear up all the doubt and uncertainty which still surround these diseases, M. Jaccoud has done much towards simplifying their diagnosis.

PRINCIPLES AND PRACTICE OF DENTISTRY, including the Anatomy, Physiology, Pathology, and Therapeutics of the Teeth, with Dental Surgery and Mechanism. By CHAPIN A. HARRIS, M.D., D.D.S., late President of the Baltimore Dental College, etc. Tenth Edition, Revised and Edited by PHILIP H. AUSTEN, M.D., Professor of Dental Science and Mechanism in the Baltimore Dental College. With 409 Illustrations. 8vo, pp. 794. Philadelphia, Lindsay & Blakiston, 1871.

It is, comparatively speaking, but a few years since all the information to be obtained upon the subject of dentistry was embraced within the limits of a short chapter in the surgical text-books. Dental pathology and mechanism were "terra incognita," and dental therapeutics was limited to the application of one remedy for all morbid conditions, no matter what their nature. It is true it was suggested to make use of certain medicaments, in the hope that they might relieve the toothache, but the suggestion usually culminated in a final recommendation to employ the one potent remedy,—viz., extraction.

How great the change to-day! To comprehend fully the advances made in dental science, it is but necessary to glance over the pages of the handsome volume before us. Instead of a short chapter or two, we have here the "Principles and Practice of Dentistry" swelling into the magnificent proportions of a royal octavo, and the student is led, by a very proper arrangement of topics, from the consideration of the anatomy and physiology, through the pathology and therapeutics, of the teeth, to elaborate practical treatises on dental surgery and mechanism. This, as will be observed above, is the tenth edition of Dr. Harris' work, and in order that it should maintain the deservedly high reputation which it has for so long a period enjoyed, the editor determined to submit it to a careful and complete revision in all its parts. That this should be properly accomplished, he very wisely made a division of labor, assigning to himself the part on dental mechanism, and "the other parts to gentlemen of acknowledged proficiency in their respective departments."

The opening chapter of Part I. is devoted to the discussion of the "Development of the Cell Doctrine,"—a subject of absorbing interest; and the writer announces his "unqualified adherence" to the doctrine promulgated by Prof. Lionel S. Beale, as modified by Prof. Tyson, of this city, in his "Cell Doctrine." In the succeeding chapters of Part I. the descriptive anatomy of the oral cavity is given. Chapters IX. and X. are more especially occupied with the consideration of the teeth, their origin, mode of development, and intimate structure.

The pathology and therapeutics of the teeth and the associated parts are discussed at length in Part II. This embraces chapters on "Diseases of the Mucous Membrane and Gums," "Salivary Calculus," "Fluids of the Mouth," "Symptomatology of the Lips and Tongue," "Diseases of the Dental Pulp, Alveolar Processes, and Teeth."

The subjects of dental surgery and dental mechanism receive the most elaborate treatment at the hands of the gentlemen to whom was assigned the consideration of these topics. Particularly does this remark apply to Part IV., on Mechanics. The large experience of the editor has enabled him to treat this subject in an exhaustive manner. Discarding all that is obso-

lete, he has embodied all that is new, "omitting no subject of present or prospective importance." We would be glad if our space permitted us to review in detail this valuable contribution to prosthetic dentistry.

The concluding chapter of Part IV. is from the pen of Norman W. Kingsley, D.D.S., of New York, and treats of the "Defects of the Palatine Organs." The greater portion of this chapter is very properly devoted to the consideration of "Obturator and Artificial Palates,"—subjects which more especially claim the attention of mechanical dentists. The principles of their construction are fully set forth, and much useful information is imparted in reference to this important branch. The remarks upon staphyloplasty are as full as is requisite in a work of this character. In discussing this subject, the writer gives the anatomy of the parts involved in fissured palate, describes the various forms under which it occurs, and details the history of the operation and the various modifications in its performance which have from time to time been suggested.

In speaking of Langenbeck's method for closure of fissure of the hard palate, in which the periosteum is detached with the mucous membrane, and the gap closed by osseous tissue, he announces himself "skeptical" as to the results, and avows his determination to remain so until "an autopsy reveals that real osseous tissue has filled up the breach in the continuity of the palate-bone." Having witnessed the performance of the operation by Prof. Langenbeck, and having observed the results in one case under his care, we feel prepared to testify that the fissure was closed by osseous tissue. Dr. Whitehead, of New York, who has performed a number of these operations, states (*American Journal of the Medical Sciences* for July, 1871, p. 115) that "in at least two of my cases there was a permanent reproduction of bone in the periosteal flaps with which the cleft was closed." We think sufficient evidence has been gathered in the experience of those who have made this operation a special study, to warrant the conclusion that osseous tissue is produced in these cases.

In our examination of this edition we have been impressed with the fact that it is far superior to former ones, and we highly commend the plan adopted by the editor in its preparation.

In conclusion, we have to note some evidences of careless proof-reading, which mar the text. Happily they are few. The first presents itself on the title-page, in the title of Dr. Harris, which is given *M.D., D.S.S.*, instead of *M.D., D.D.S.* Dr. Lionel S. Beale is spoken of as Dr. Lionel Beale, and at page 117 as Mr. Beal.

The captions of the chapters in Part II. might be improved. Under the caption of "The Gums" are discussed "Cysts of the Teeth and Antrum" and "Tumors of the Jaws." In Part III. (Surgery) we find a chapter on "Diseases of the Maxillary Sinus." It seems to us that it would contribute to a better arrangement of subjects if those chapters relating to surgical affections of the jaws were transferred to Part III.

THE MODERN OPERATION FOR CATARACT. By HASKET DERBY, M.D., University Lecturer on Ophthalmology, and Surgeon to the Massachusetts Charitable Eye and Ear Infirmary. Pamphlet, 8vo, pp. 23. Boston, David Clapp & Son, 1871.

This pamphlet consists of a lecture before the medical students of Harvard University, on Graefe's "Modified" or "Peripheral Linear Extraction," giving a brief history of the operation, and minute and clear instructions for its performance, and the after-treatment of the patient.

The directions for after-treatment are interesting to all surgeons who operate for cataract, because we are told that they are "almost a literal summary of Graefe's views," as expressed in an article written a few months before his death, and may, therefore, be considered the final deductions of his vast experience; and because they are more minute than can be found in the text-books in general use, and differ in some particulars from those usually followed. They are briefly as follow: No atropia is to be used at first, and not before the third day, unless cortical matter has been left behind. A piece of soft linen is to be laid over the eyelids gently closed, the orbital cavity carefully filled with charpie evenly distributed, and the flannel bandage so applied as to exert uniform pressure suffi-

cient to hold the edges of the wound in apposition, but not excessive; the other eye is to be closed with isinglass plaster. The dressing should be changed the evening of the operation, and again the next morning, and after that once in twenty-four hours, unless circumstances require it to be removed more frequently. In the first changes of dressing the wound is not to be exposed, but the upper lid raised slightly, to give a glimpse of the lower part of the cornea by the light of a candle. Little or no pain should follow the operation. If severe enough to make the patient restless, morphia should be injected subcutaneously in the temple. After the sixth hour there should be not only no pain, but no decided or continuous sensation of discomfort: if there be such sensation, the bandage should be changed; if it continues, morphia should be injected, and, if necessary, a second injection should be made; or if the patient be full-blooded, or his circulation excited, four or five ounces of blood are to be taken from his arm. Much importance is attributed to a night's sleep after the operation, and large doses of chloral at bedtime are recommended even when there is no pain. The most critical period is between the twelfth and twenty-four hours after the operation. If there is any, even slight, pain at this time, the bandage should be removed at once, and the eye examined. If the pain persists after gently washing the lids, removing the bandage, and injecting a little morphia, at least four ounces of blood should be taken from the arm. If there is much secretion from the eye, swelling of the lids, or chemosis, the danger of suppuration requires active measures. The "mitigated stick" (one part of nitrate of silver and two of saltpetre) is to be rubbed gently over the outside of the lids, and they are to be afterwards washed, first with salt water, and then with pure cold water, and thoroughly dried, and a *constrictive* bandage applied. If the patient is tolerably plethoric, six ounces of blood are to be taken from the arm, and a cathartic of calomel and rhubarb given. Morphia is to be injected if there is pain. When suppuration has fairly commenced, bloodletting is not advised, and leeches are said to do positive harm. The pressure bandage is to be removed, and the cauterization repeated every six hours. When the health is much reduced, quinine should be given. If there is gastric irritation, an emetic is to be given on the second day. Warm fomentations may be used between the applications of the bandage, but not for more than a quarter or half an hour at a time, and should be omitted entirely if followed by swelling. Graefe evidently used the latter application much less freely of late than formerly.

As Dr. Derby says, these energetic measures have been severely criticised, and are likely to meet with great opposition.

To the surgeon who, with a strong faith in Nature, has been accustomed to leave the result of his operations entirely in her hands, the very frequent removal of the bandage and repeated local treatment will savor of *nimia diligentia*, while calomel and rhubarb, general bleeding and emetics, will seem to many like a step in the wrong direction.

It must be remembered, however, that we are not advised to interfere with the course of the case unless it shows symptoms of dangerous deviation. We are told, too, that "when the patient is not particularly strong the venesection may be omitted," and may find comfort in the reflection that this exception will include a large proportion of cataract cases, particularly as met with in hospital practice. Whatever may be thought of the directions, there can be but one opinion of the weight of the authority from which they emanate.

BOOKS AND PAMPHLETS RECEIVED.

Essay on Growths in the Larynx: with Reports and an Analysis of One Hundred Consecutive Cases treated by the Author, and a Tabular Statement of all Published Cases treated by Other Practitioners since the Invention of the Laryngoscope. By Morell Mackenzie, M.D., M.R.C.P., Physician to the Hospital for Diseases of the Throat, etc. With numerous Illustrations in Chromo-Lithography and Wood-Engraving. 8vo, pp. xi., 263. Philadelphia, Lindsay & Blakiston, 1871.

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A Treatise on Localized Electrization and its Applications to Pathology and Therapeutics. By Dr. G. B. Duchenne. Translated from the Third Edition of the Original by Herbert Tibbitts, M.D., Licentiate of the Royal College of Physicians of London, etc. With numerous Illustrations and Notes and Additions by the Translator. 8vo, pp. 322. Philadelphia, Lindsay & Blakiston, 1871.

Artificial Induction of Labor in Uræmia. By Samuel C. Busey, M.D. Pamphlet, pp. 62. Reprinted from the *National Medical Journal*, Washington. National Med. Journal Office, 1871.

Historical Memoranda relative to the Discovery of Etherization, and to the Connection with it of the late Dr. William T. G. Morton. Prepared by the Committee of Citizens of Boston chosen to raise a Morton Testimonial Fund. Pamphlet, 8vo, pp. 16. Boston, Rand, Avery & Frye, 1871.

Syphilitic Epilepsy. By Reuben A. Vance, M.D. Pamphlet, 8vo, pp. 16. Reprinted from the *American Journal of Syphilography and Dermatology*, July, 1871. New York, F. W. Christern, 1871.

The Physiological Action and Therapeutic Use of Chloral. By J. B. Andrews, M.D. Pamphlet, 8vo, pp. 24. Reprinted from the *American Journal of Insanity* for July, 1871. Utica, N.Y., Roberts, 1871.

Standard Supply Table of the Medical Department of the United States Army. 18mo, pp. 32. Issued from the Surgeon-General's Office, July 1, 1871, Washington, D.C.

GLEANINGS FROM OUR EXCHANGES.

APPLICATION OF A COLPEURYNTER FOR THE ARREST OF EPISTAXIS.—Dr. Closset (*Berl. Klin. Wochenschrift*, June 19, 1871, p. 294), under the name of Rhineurynter, recommends the use of an instrument, designed like a hard-rubber Eustachian catheter, which carries in its curved extremity a delicate sac. When the instrument is passed along the floor of the nasal chamber to the posterior nares, and the sac is inflated, it is found to successfully close the posterior nares. It is esteemed above Bellocq's canula, which is deemed inconvenient and more complicated.

SUDDEN DEATH FROM ILEUS.—Dr. Henschel (*Berl. Klin. Wochenschrift*, June 12, p. 285) narrates the following: "An old man, aged 80 years, enjoying good health, was suddenly prostrated, complained of intense pain over the right iliac region, had feculent vomiting, and died a few hours later. The autopsy revealed torsion of the small intestine three inches above the ileo-cæcal valve. Directly above the point of obstruction lay five gall-stones, varying in size from a bean to a hazel-nut. The gall-bladder contained thirty gall-stones. The common duct was pervious, and it was thought that the suddenness of the attack was due to the easy and presumably rapid entrance of several large gall-stones into the intestinal canal. There was no peritonitis, and but slight localized enteritis."

THE REMOVAL OF TUMORS FROM BONES.—Mr. James Paget recently communicated to the Royal Medico-Chirurgical Society (*The Doctor*, July 1, 1871, p. 136) upon the above subject. He urged the propriety of "removing the majority of non-malignant tumors growing in bones by simple extirpation or enucleation rather than by resection or amputation. It was shown that these tumors are as separate from the proper tissue of the bones as are fatty and most other innocent tumors from the connective tissue or other structures in which they grow, and that the same rules of operation are applicable to the one as to the other set of tumors. Examples were given of successful enucleation of fibrous, myeloid, cartilaginous, and osseous growths."

AN INSTRUMENT TO FACILITATE SKIN-GRAFTING, suggested by a Mr. Crips, a student of St. Bartholomew's, is thus described in the *London Lancet*, June 3, 1871: "It consists

of a pair of curved scissors, which are provided on their concave surface with bent forceps. They are controlled by a lever, which descends with the separation of the blades, and rises when they are brought together. The movements of these several parts are so concerted that the forceps meet between and just below the blades, immediately before the closure of the latter, and then rise between them to such a height that whatever they have seized will be divided from its attachment when the blades actually meet. Thus the whole process of seizing a small portion of skin, separating, and raising it, can be almost simultaneously accomplished with one hand. The size of the severed piece of skin is proportionate to the force with which the forceps are pressed against the surface from which it is to be removed."

HYDRATED PHOSPHATE OF LIME IN THE SICKNESS OF PREGNANCY.—Mr. Metcalfe Johnson (*Med. Times and Gaz.*, July 1, 1871) recommends this substance in doses of from three to ten grains three times a day, suspended in water, and flavored. He has also tried the remedy dissolved in hydrochloric acid, in the dried state, and also made up into biscuits; but the first method has proved most satisfactory. His theory of its action is ingenious and interesting. He believes that the altered shape of the uterus, the altered nerve-relations, make an unusual demand upon nervous influence. Neuric force derives much of its source and nutrition from phosphates. Moreover, the child in its formation requires more phosphates for its new bones, and, if these are supplied at the expense of the brain and ganglionic nerve, debility, nervousness, and all the concurrent train must be brought about; hence arise those feelings of depression, peevishness, and irritability so frequently associated with the pregnant state. He has also been in the habit of using this form of phosphate in ricketty children.

DETECTION OF XANTHINE IN URINARY CALCULI.—M. Lebon (*Lancet*, July 29, 1871), of the French Academy of Sciences, has found the following procedure useful for separating lithic acid from xanthine in urinary calculi, being founded upon the solubility of the latter in hydrochloric acid and the insolubility of lithic acid in the same liquid. Let, therefore, a fragment of the stone, reduced to powder, be boiled in hydrochloric acid, and the fluid be filtered. The insoluble portion of the latter is lithic acid, and the substance held in solution is xanthine. The nature of both substances may then be made out very easily by watching their usual reactions.

TREATMENT OF SCLEROSIS OF THE MIDDLE EAR BY USE OF STEAM.—Dr. H. N. Spencer, from employing Dr. Pardee's method of treating diseases of the middle ear by the use of steam (*St. Louis Med. and Surg. Jour.*, July, p. 294), confirms the latter gentleman's results, and narrates five cases of sclerosis (plastic inflammation) of the middle ear, having an average duration of ten years, which were markedly relieved after a course of treatment varying in time from twenty days to three months. From the language of Dr. Pardee (*loc. cit.*) we learn that "in the treatment of diseases of the tympanic cavity, its condition of moisture or of dryness should be considered on account of its relation to the acoustic requirements of the hearing-apparatus; and, when dryness exists, our therapeutic efforts should tend to re-establish the normal secretion, while, on the contrary, astringent remedial agents are proper only when there is hypersecretion."

ELECTROLYSIS IN SURGERY.—M. Groh (*Lancet*, from *Centralblatt*, No. 2) has made a series of experiments with differently constructed batteries. He finds that strong currents are best adapted for those cases in which it is desirable that rapid destruction should be effected, as in carcinoma; but for the treatment of small tumors, and where the object is to produce coagulation, those batteries should be used which consist of a small number of small plates. The pain accompanying the operation increases with the number of the elements. He is of opinion that in those cases in which it is desired to avoid pain as far as possible, the batteries that are used for galvanocaustic purposes are most appropriate. He believes that electrolysis is only a corrosion of the tissue; nevertheless, in a great number of cases, it acts better than any other caustic. In the first series of cases he reports that he treated six patients in twelve sittings with the catalytic current. None

of these patients were narcotized, and the pain was found to be supportable up to twenty elements. One of them was a man, aged thirty-nine, with hydro-sarcocele. Immediately after the application, considerable diminution of the consistence of the tumor was observed; and after four days it had diminished one-half. In a number of other cases of strumous enlargements, melano-sarcoma, etc., in some, success attended the treatment, in others failure. In a second series of experiments, M. Groh endeavored to introduce arsenic and sodium into the body by means of the current, but obtained only negative results. He has used electrolysis in various modes: with strong currents applied for a short time, and with weak currents for a longer period; the former in cases of angioma, hemorrhoids, or swellings, scrofulous lupus, condylomata, and sarcoma, and in all instances with good results. The application of weak currents he thinks deserving of much more extended trial, as it has answered capitally in his hands.

PATHOLOGICAL ANATOMY OF HYDROPHOBIA IN THE DOG.—Prof. Rudnew, of St. Petersburg, contributes to the *Centralblatt für die Medicinischen Wissenschaften*, May 27, a short paper containing a few of the results of his investigations into the pathology of hydrophobia. In every instance in which a dog which had died of this disease was examined, the organs were the seat of decided lesions. This was particularly the case with the kidneys. In every case, he says, a well-marked parenchymatous inflammation of the kidneys was observed, the peculiarity of which was that the changes of the epithelia of the urinary tubules were equally distributed over the whole organ, the cortical portion of the kidney being equally affected with the pyramidal, so that all the conditions for the occurrence of uræmia were present. It is therefore probable that many of the symptoms of hydrophobia are really due to uræmia. The alteration of the epithelia is for the most part of a degenerative character. In those cases in which the disease had reached its greatest degree of development, the urinary tubules were entirely stripped of epithelial cells, but were filled with a granular and fatty detritus.

INTESTINAL OBSTRUCTION FROM A KNOT IN THE LOWER PART OF THE ILEUM.—The post-mortem appearances in a case of the above accident are thus described by Dr. Michael W. Taylor in the *British Medical Journal* for July 29, 1871: "The small intestines were much distended, and concealed from view all other organs; their parietes were thin and transparent, without rupture, and not remarkably changed in color, until approaching the right iliac region, where a livid mass of strangulated bowel indicated the site of the obstruction. The lower portion of ileum along with the cæcum was removed for examination. A portion of the ileum, about twenty-two inches in length, was found tied in a running knot about two inches above the cæcum. The entanglement must have taken place in this wise: about twelve or fifteen inches of the lowest part of the ileum must have become coiled in a circular loop; the portion of the intestine directly above must have twined round from behind to the front of this coil; a knuckle or rather elbow of this portion of the bowel must then have accidentally slipped through the loop, and, having become embraced by it, on the tightening of the noose, have been caught in a slip-knot, or the same knot as that by which sailors hang their neck-tie. This included portion formed a sort of *cul-de-sac*, being bulged out into a globose form, with a semilunar outline, like a bag or pouch, measuring five inches by three, and marked on the surface with the depressions of six or eight sacculi or folds. It was drawn into puckers at the neck, but the little finger could be passed freely under the point of constriction; it contained fluid, and was not immoderately distended, and the color was heightened only and not livid. It was the cæcal or distal end of the ileum which constituted the knot, which was in one place of a dark brick-dust or brown color, and in another coil of a livid purple, and in parts black, soft, and gangrenous. This was the point at which the constriction was greatest. Below the knot the distention and dark color terminated abruptly. The cæcum and colon were white and collapsed. The stomach was empty; the gall-bladder full. No disease was found elsewhere."

ANTIDOTES FOR DIGITALIS-POISONING.—In the Hastings Prize Essay on Digitalis (*Brit. Med. Jour.*, July 29, 1871) Dr. Fothergill writes as follows of antidotes to digitalis:

"Though digitalis-poisoning is no longer so common since a more accurate knowledge of its action has lent precision to its administration and its use, still cases might occur where, through misadventure or oversight, or perhaps some peculiar susceptibility in the patient, a condition of danger might arise from its administration. Such a condition must carefully be distinguished from attacks of cardiac syncope, the result of disease. If it were once ascertained that the danger was due to the drug, it would be necessary at once to stop its use; if it resulted from one huge dose producing acute poisoning, it might be advantageous to empty the stomach; in chronic poisoning, sickness is spontaneous. The use of agents must be resorted to which are known to paralyze the heart,—for instance, aconite. In experiments on the frog, though aconite did act on the heart after the poisonous effects of digitalis had been induced, still its action was far from being so marked as when digitalis was given in aconite-poisoning. In digitalis-poisoning, aconite may be resorted to as an antidote. From the action of the calabar bean, as described by Dr. T. R. Fraser, of Edinburgh, it is highly probable that it would act beneficially in the excessive action of digitalis."

MISCELLANY.

METEOROLOGICAL.—The mean temperature of the month of July, 1871, was 75.07° Fahr., and that of July, 1870, was 80.63°. The average of the mean temperature for the last forty-seven years is 76.20°. The highest temperature observed in July, 1871, was 97°, on the 11th inst., and the lowest 60°; presenting a range of 37°.

The rain-fall during July, 1871, was 6.81 inches, while in July, 1870, it was only 3.95 inches. The average rain-fall for the past thirty-four years is 3.87 inches.

The mean temperature during the month of August, 1871, was 76.35° Fahr., 2.42° less than that of August, 1870. The highest marking of the thermometer during the past month was 92.5°, on the 15th, and the lowest, 64°, on the 21st; presenting a range of 28.5°. The mean temperature of August for the past forty-seven years is 73.77°.

The total rain-fall for the past month was 5.97 inches, whilst that of August, 1870, was 5.12 inches. The average rain-fall for August of the past thirty-seven years is 4.48 inches.

THE THREE LARGEST GERMAN UNIVERSITIES.—We learn from the *Wiener Med. Presse* (No. 29, Sonntag, den 16. Juli, 1871) that the entire number of individuals, including professors, teachers, officials, and students, attached to these great schools, according to the recent summer announcements, is as follows: Berlin, 2113 regular matriculated students; Leipsic, 1803; Munich, 1107. The foreigners are—at Berlin, 456; at Leipsic, 972; at Munich, 149. They are distributed as follows: Of theological students, at Berlin there are 254, at Leipsic, 380, and at Munich, 91; in law, at Berlin there are 604, at Leipsic, 520, and at Munich, 343; in medicine, at Berlin there are 454, at Leipsic, 263, and at Munich, 262; in philosophy, at Berlin there are 801, in Leipsic, 640, and in Munich, 411. It must not be overlooked, however, that Leipsic and Berlin had almost 1000 of these students in the service of the country. Of these, 62 have perished either in the field or hospital, and 22 have received the decoration of the iron crown. In addition, in Berlin 15 professors hold the iron crown, and in Leipsic 4.

INTERESTING TO DRUGGISTS.—An apothecary (*N. Y. Times*, August 4, 1871) in one of the interior counties of New York has been sued for damages by the husband of a woman to

whom he sold laudanum to be used as a beverage, and the supreme court has decided that the suit can be maintained. The plaintiff avers that the apothecary supplied his wife with the narcotic day by day for six months, knowing the use she made of it, and that he was put to great expense in repairing the injury thus occasioned to her bodily and mental health. The case is so similar to that of the liquor-seller supplying liquor to an habitual drunkard, that if the decision of the court is maintained by the court of appeals we may expect numerous suits by wives and husbands whose domestic happiness has been ruined by excessive drinking, against the immediate authors of the injury.

WOMAN'S HOSPITAL IN EDINBURGH.—Miss Jex Blake (*Brit. Med. Jour.*, July 22, 1871) has received £200 from a lady to form the nucleus of a fund for the clinical instruction of female medical students; the staff is also to be composed of ladies.

UNANSWERED.—The following is a copy of an advertisement taken from a Boston paper last spring: "Wanted, by a lady who has received a good medical education, an opportunity to act as physician or assistant physician in some charitable institution in Boston. No remuneration desired for services." The advertisement has remained to this day unanswered.

SEVERE EXAMINATIONS.—Twenty-seven out of sixty-eight candidates who presented themselves for examination before the Court of Examiners of the London College of Surgeons, on May 24, were rejected.

DR. CHARLTON BASTIAN.—The Medical Committee of University College Hospital, London, have recommended that the title of Physician be conferred upon this eminent biologist, pathologist, and clinician.

A DESCENDANT OF JENNER.—Mr. Stephen Jenner, grand-nephew and only surviving relative of Dr. Jenner (*British Medical Journal*, July 29, 1871), is now living, at the age of 75, in bad health, on ten shillings a week, in a poor cottage at Heathfield, England. The English journals, including the *Times*, are warmly urging his claims to a position on the Civil List. We question whether the world owes a debt of deeper gratitude to any individual than to Jenner. There is not a single individual who has been protected by vaccination from small-pox who does not owe him more than he can repay. We coincide, therefore, with those journals in that it is not a matter of obligation with the profession but with nations to provide for this descendant, who, it seems, was under medical training by his great uncle when the latter was suddenly struck with apoplexy at the breakfast-table, the nephew only being present. The unfortunate accident had the effect of arresting his medical studies, and, therefore, of cutting him off from a career which perhaps would have been useful, as well as have provided what he now lacks,—the means of subsistence.

THE PREVENTION OF MISTAKES IN THE ADMINISTRATION OF MEDICINES.—Mr. C. T. Bakes, of this city, in a forthcoming communication, proposes that a red label with raised sanded border should be used on bottles containing medicines with poisonous ingredients. The bottle for lotions is recommended to be of a triangular shape, of a deep black or blue color, and marked with serrations around the mouth-rim. By these aids it is hoped that mistakes may become of much less frequent occurrence.

LIBRARY OF THE BROOKLYN CITY HOSPITAL.—Messrs. John Haslett and Alexander V. Blake have been appointed a committee to solicit contributions of medical periodicals and books, to start a library in the Brooklyn City Hospital.

From the last report, it appears that the institution is a charitable one, having an average of nearly *two hundred patients*, with four resident and eight visiting physicians and surgeons.

A medical library is very much needed; and, as there are no funds that can be used for the purchase of periodicals or books, the trustees venture to ask for donations from those upon whom they have no claim, but who yet may find it profitable to have their works and catalogues in the library of the medical staff, as they are constantly consulted by other physicians of the city.

SIMPLE METHOD OF MEASURING THE SPECIFIC GRAVITY OF SMALL QUANTITIES OF URINE.—In the *Medical News and Library* for August 1, 1871, from the *Boston Medical and Surgical Journal*, are published the following directions for this purpose:

"Add to the quantity of urine to be examined as many equal volumes of water as may be necessary to float the urinometer. Multiply the excess of the specific gravity of the mixture above 1000 by the whole number of volumes employed, add to it 1000, and the result will be the specific gravity of the urine."

THE COMPARATIVE FREQUENCY IN AMERICA OF VENEREAL DISEASE.—The English Minister at Washington, in behalf of the Lords of Her Majesty's Privy Council, had brought this matter, by circular, to the notice of the Executives of the several States,—the request for information being made with reference to an extension of the "Contagious Diseases Act of 1866" to the civil population of Great Britain.

HONORS TO PROF. CHRISTISON.—On the 29th of June (*Lancet*, July 8, 1871) the colleagues and friends of Prof. Christison assembled in the University of Edinburgh to witness the ceremony of presentation of a bust of the professor, to be added to the collection of the University Library. To appreciate the value of this distinction, it should be remembered that it is every way exceptional to place a bust in the library during its subject's lifetime. A duplicate bust was at the same time presented to his family. Prof. Christison has held a prominent position in the University for forty-nine years.

MEDICAL ROUGHS.—This is the title given by the *Lancet* (July 29, 1871) to certain Edinburgh medical students who have "pursued the lady students about the streets with insulting cries of an obscene description, using the terms of anatomy to insure that their language, otherwise unintelligible to pure-minded women, might be understood by the victims of their foul abuse."

Such conduct can only meet with the disapproval of all honorable members of the profession, whatever their position with regard to the question of female physicians. Moreover, it is to be regretted that those who have been active participants in these proceedings are not able to see that they are really furthering the cause of the women by exciting the sympathy of those otherwise indifferent, and increasing the determination of their advocates to push their cause to a successful situation.

PHYSICAL CAUSE OF THE DEATH OF CHRIST.—According to Dr. Stroud ("Physical Cause of the Death of Christ," etc.),

Christ died of cardiac rupture. Impalement on the cross for but six hours, it is held, was insufficient to have caused death in itself. The sudden and unexpected termination of our Saviour's sufferings points to a rupture,—a probability apparently confirmed by the escape of crassamentum and serum (blood and water) from the thrust of the doubting soldier. The spear probably pierced the lower part of the left side, opening the pericardium obliquely from below.

MORTALITY OF PHILADELPHIA.—The following reports are condensed from the records at the Health Office:

	For the week ending		
	Aug. 26.	Sept. 2.	Sept. 9.
Consumption	38	38	47
Other Diseases of Respiratory Organs	20	16	14
Diseases of Organs of Circulation	12	7	11
Diseases of Brain and Nervous System	40	28	36
Diseases of Abdominal Organs	53	57	53
Zymotic Diseases	23	20	23
Debility	28	20	18
Marasmus	13	12	15
Cancer	2	9	4
Casualties	9	8	9
Murder	2	1	1
Suicide	1	1	1
Old Age	8	8	9
Stillborn	16	13	24
Malformation	0	1	0
Sunstroke	1	0	0
Scrofula	4	1	0
Syphilis	1	1	0
Tetanus	1	0	3
Intemperance	0	1	2
Unclassifiable	8	9	12
Unknown	2	2	1
Totals	282	253	283
Adults	118	112	124
Minors	164	141	159

OFFICIAL LIST

OF CHANGES OF STATIONS AND DUTIES OF OFFICERS OF THE MEDICAL DEPARTMENT U. S. ARMY. FROM AUGUST 19, 1871, TO SEPTEMBER 4, 1871, INCLUSIVE.

- MILLS, MADISON, SURGEON.**—By S. O. 340, War Department, A. G. O., August 31, 1871, leave of absence extended thirty days.
- MOORE, JOHN, SURGEON.**—By S. O. 188, Headquarters Department of the East, c. s., granted leave of absence for twenty days.
- CLEMENTS, B. A., SURGEON.**—By S. O. 172, Department of Texas, August 23, 1871, granted leave of absence for thirty days, with permission to apply for an extension of fifteen days.
- ALDEN, C. H., SURGEON.**—By S. O. 91, Headquarters Department of the Lakes, c. s., granted leave of absence for thirty days.
- WINNE, CHAS. K., ASSISTANT-SURGEON.**—By S. O. 236, War Department, A. G. O., August 22, 1871, to report on the 1st of September prox. to the Commanding-General, Department of Dakota, for orders.
- KOERPER, E. A., ASSISTANT-SURGEON.**—By S. O. 171, c. s., Department of Texas, granted leave of absence for thirty days, with permission to apply for an extension of thirty days.
- GIRARD, A. C., ASSISTANT-SURGEON.**—By S. O. 171, Department of Texas, August 22, 1871, assigned to duty at Ringgold Barracks, Texas.
- POWELL, R., ASSISTANT-SURGEON.**—By S. O. 317, War Department, A. G. O., August 16, 1871, relieved from duty in the Department of the Columbia, and ordered to proceed to New York City, reporting by letter, upon arrival there, to the Surgeon-General.
- WILSON, WM. J., ASSISTANT-SURGEON.**—By S. O. 339, Headquarters of the Army, A. G. O., August 30, 1871, granted leave of absence for three months.
- DELANEY, A., ASSISTANT-SURGEON.**—By S. O. 103, Headquarters District of New Mexico, August 21, 1871, to proceed at once to Fort Bayard, N. M., for duty at that post.
- HARVEY, P. F., ASSISTANT-SURGEON.**—By S. O. 50, Headquarters Military Division of the South, c. s., leave of absence extended thirty days.

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